Drivers and Enablers of Hydropower Development in the Lao PDR
The Political Ecology of Mekong Riparians, Investors and the Environment

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Drivers and Enablers of Hydropower Development in the Lao PDR: The Political Ecology of Mekong Riparians, Investors and the Environment

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Abstract

The study has employed a political ecology approach to analyse what is driving and enabling the rapid pace of hydropower development in the Lao PDR. The Lao PDR is the focus of the study but it has been necessary to marshal evidence from the entire Mekong Basin because the asymmetric international politics of the basin shape the drivers and enablers.

The Mekong Basin is currently experiencing rapid social, economic and ecological change. Hydropower is a key component. Lao PDR is at the centre of the Basin's hydropower development. The research employs political ecology to critique the narratives, mechanisms, and power relationships and agendas that drive and enable hydropower development. The meso-scale analysis highlights the links between the political, economic and social mechanisms, macro-political economic forces and local level environmental and social change. Recent and current phases of investment and development over the last two decades are analysed. The research methods include interviews with key informants, document analysis and participant observation. Evidence from case studies across Lao PDR is employed together with the case study of the Xayaburi dam, the first mainstream dam in the Lower Basin.

The study makes two original contributions. First, it examines the Xayaburi dam, which began construction in November 2012. Second, it is the first comprehensive, meso-scale, political ecology critique of hydropower development in the Lao PDR. Through its analysis the research provides extensive evidence of the mechanisms that drive and enable differences between the rhetoric and reality of hydropower development in Lao PDR. The research shows that the polarized debate surrounding hydropower, the outcome of which is so important for the future of the Mekong Basin and its peoples, has been constructed to allow contending actors to legitimize their own agendas. It will be shown that in many cases hydropower projects are built because they benefit international and regional elites. Their access to political power, corrupt practices, policy influence, the patronage of jobs and to regional control more

generally come with serious consequences for the environment and for the livelihoods of much of the Basin's population. These insights provide lessons learned that are relevant to global autocratic states developing their natural resources.

Declaration

I declare that this thesis is my own work and has not been submitted in any previous application for a degree.

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Acronyms and Abbreviations

ADB	**Asian Development Bank**
ASEAN	**Association of South-East Asian Nations**
ASEM	**Asia-Europe Meeting**
BDP	**Basin Development Plan**
BOOT	**Build Own Operate Transfer**
BPKP	**Bholisat Phattana Khed Phoudoi**
CIWEC	**China International Water and Electric Corporation**
CNR	**Compagnie Nationale du Rhone**
CPI	**Committee for Planning and Investment**
CPWF	**The Challenge Program on Water and Food**
DESIA	**Department of Environmental and Social Impact Assessment**
ECAFE	**Economic Commission for Asia and the Far East**
EdL	**Électricité du Lao**
EDF	**Électricité de France**
EGAT	**Electricity Generating Authority of Thailand**
EIA	**Environmental Impact Assessment**
EMP	**Environmental Management Plan**
EPPO	**Energy Policy and Planning Office**
ERC	**Energy Regulatory Commission**
ESIA	**Environmental Social Impact Assessment**
GDP	**Gross Domestic Product**
GMS	**Greater Mekong Sub-region**
GNI	**Gross National Income**
GoL	**Government of Laos**
HE	**His Excellency**
HHPC	**Houay Ho Power Company**
IA	**Impact assessment**
ICEM	**International Centre for Environmental Management**
IEA	**International Energy Agency**

IMC	**Interim Mekong Committee**
IMF	**International Monetary Fund**
INGO	**International Non-governmental Organisation**
IPP	**Independent Power Producers**
IR	**International Rivers**
IUCN	**International Union for Conservation of Nature**
IWRM	**Integrated Water Resource Management**
LMB	**Lower Mekong Basin**
LMI	**Lower Mekong Initiative**
LNMC	**Lao National Mekong Committee**
MCP	**Mitigation and Compensation Program**
MEM	**Ministry of Energy and Mines**
MIH	**Ministry of Industry and Handicraft**
MoU	**Memoranda of Understanding**
MRC	**Mekong River Commission**
MWRAS	**Mekong Water Resources Assistance Strategy**
NEPA	**National Environmental Policy Act**
NTFP	**Non-tradable forest products**
NTPC	**Nam Theun Power Company**
NT2	**Nam Theun 2 Dam**
NYC	**New York City**
OED	**Oxford English Dictionary**
PDP	**Power Development Plans**
PKKNP	**Phou Khao Khouay National Protected**
PNPCA	**Procedures for Notification, Prior Consultation and Agreement**
RBO	**River Basin Organization**
RMR	**Resource Management & Research**
SEA	**Strategic Environmental Assessment**
SIA	**Social impact assessment**
SOE	**State-owned enterprises**
STEA	**Science Technology and Environment Agency**
THB	**Theun Hinboun Dam**

THPC	**Theun Hinboun Power Company**
THXP	**Theun Hinboun Expansion Project**
UNDP	**United Nations Development Programme**
UNESCAP	**UN Economic and Social Commission for Asia and the Pacific**
USGS	**United States Geological Survey**
WB	**World Bank**
WCD	**World Commission on Dams**
WRCC	**Water Resources Coordination Committee**
WREA	**Water Resource and Environment Administration**
WWII	**World War Two**

Note on Spelling

Throughout the thesis, British English is used. Spelling follows the Concise Oxford English Dictionary (12th edition). In case of multiple spelling entries, the first entry is used. Examples of spelling used are ‘analyse‘, ‘focused‘, ‘organization‘ and ‘utilize‘. Direct quotations maintain their original spelling.

Note on Currency

All currency is presented in United States Dollars.

Acknowledgements

The value of the study has been in the journey as much as the destination. The fact that the journey was a great pleasure and a privilege is due to the support and encouragement of many people.

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provided me an enormous learning opportunity, a great experience and a financial lifeline.

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The support of my friends and family has been indispensable. Graham Watts was a great help with editing. My good friend Oskar provided outside perspectives and was there to share a beer or two when needed.

In particular, I thank my wife Ay. She has enriched my life. Her patience, understanding and caring have boosted me through the highs and lows. Finally, I am deeply grateful to my mother for her unconditional support and encouragement.

1 Introduction - Drivers and Enablers of Hydropower Development in the Lao PDR: The Political Ecology of Mekong Riparians, Investors, and the Environment

"Water flows uphill to money and power." (Reisner, 1986)

1.1 Introduction

The purpose of this study is to illuminate the drivers and enablers of hydropower development in the Lao PDR[1]. The Mekong Basin is currently undergoing significant economic and environmental change. Hydropower is a key determinant in this change. The Basin's transformation includes plans for 11 mainstream dams and over 150 tributary dams (King et al., 2007). A number of studies suggest that these dams will have far-reaching negative impacts on the Basin's biodiversity, ecosystem services, and the livelihoods of over 60 million people (see Figure 1-1; Kummu and Varis, 2007; Barlow et al., 2008; Dugan et al., 2010; Grumbine and Xu, 2011).

Much of the current hydropower expansion is focused in Laos (see Figure 1-1). This doctoral study employs a political ecology approach to analyse what is driving and enabling the rapid pace of hydropower development in Laos. The study analyses the narratives and mechanisms related to the Impact Assessment process (IA) to understand what drives and enables hydropower to be developed in ways that ignores its potential social and environmental costs. The Impact Assessment process is one of the few windows into the hydropower development process that is open to the public. Its prominence in the hydropower development process makes it a key engagement point for actors contesting and defending hydropower dam development. The study focuses on Laos as it is currently experiencing the majority of

[1] Hereafter referred to as Laos

the hydropower development in the Mekong Basin. This study also analyses hydropower development in other Mekong Basin countries to provide context for the overall development process in the Region.

The drivers and enablers of hydropower development in other regions have been well articulated (see Reisner, 1986; Grigg, 1996; Poff et al., 2003). As Reisner (1986) points out in his detailed analysis of water development in the American West, politics and power often trump environmental and social concerns and costs. The Mekong Basin has also been subject to considerable research. White's (1962) study into the economic and social aspects of lower Mekong development was one of the first studies of its time to highlight the non-engineering aspects of Basin development. Extensive research in the Basin from the 1990s to today has focused on the environmental and social impacts of dams (see Hirsch, 1995; Dugan et al., 2010; Grumbine and Xu, 2011). This study examines the narratives and mechanisms that drive and enable these impacts.

During the first decade of the new century, the drivers and enablers of hydropower development have changed in the Mekong and around the world. Rising electricity demand in developed and developing countries, a global push for green energy, new sources of financing and increased political stability have all contributed to a changed dynamic in hydropower development. New actors, drivers and enablers have emerged while others have taken on new roles. This change in hydropower development has resulted in hundreds of new dams being planned, proposed or under construction. These new drivers and enablers have also shaped the way dams are built and how their environmental and social impacts are addressed.

Hydropower can significantly benefit economies through income generation, cheap electricity and reduced climate change emissions (Bartle, 2002; Demirbas, 2007). What is troubling about the Mekong, is that hydropower development appears to be

rapidly moving forward with little concern for its potential environmental and social impacts (Molle et al., 2009). The recognition, management and mitigation of hydropower impacts is vital in the Mekong because it is an area of high biodiversity and millions of people rely on these ecosystem services for their livelihoods and protein (Hortle, 2007). This study uses a political ecology approach to offer a fresh understanding of the drivers and enablers of hydropower development in Laos. The aim of this study is to better understand why hydropower in Laos is built in ways that often ignore its social and environmental costs.

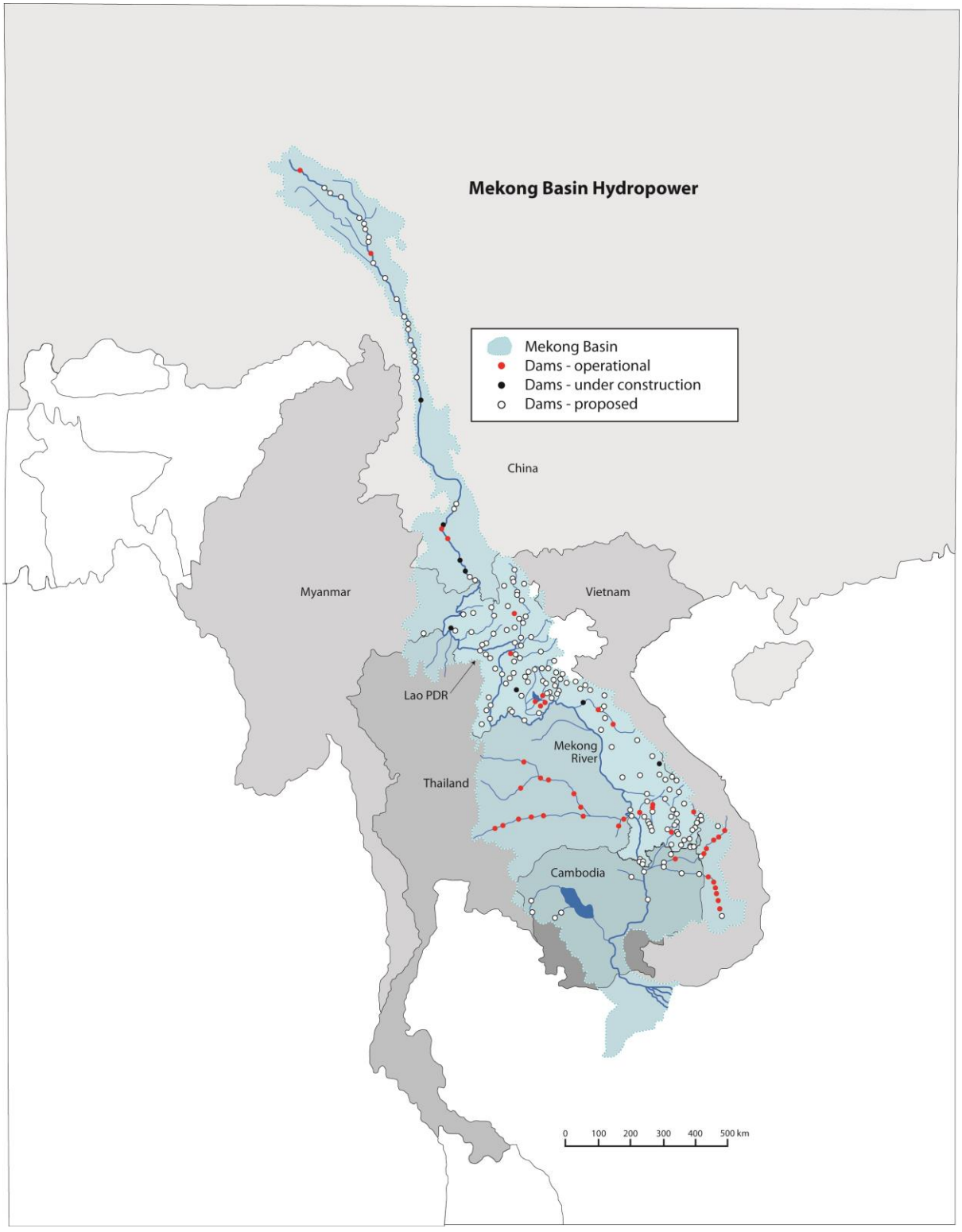

Figure 1-1 Operational, under construction, and proposed hydropower dams in the Mekong Basin. CPWF, 2010.

Political ecology has been a useful analytical approach in critically examining Mekong Basin development (Bakker, 1999; Sneddon and Fox, 2006). Its deductive approach makes political ecology appropriate for a study such as this because it illuminates the relationships between power, politics, economics and environmental change. As Blaikie (1987:17) has stated, political ecology ‘‘combines the concerns of ecology and a broadly defined political economy”.

Political economy has also been employed a useful approach in analysing development along Mekong Basin rivers (as Mitchell, 1998; Ratner, 2003; Oehlers, 2006). The strength of using a political ecology analysis over political economy however, stems from political ecology’s broad approach and its incorporation and prioritization of environmental concerns, which are especially relevant in the Mekong Basin where livelihoods and the environment are deeply intertwined.

Political ecology has traditionally examined human and environmental interactions beginning at a small scale and their links to macro scale forces and vice versa. The contributors in Zimmerman and Basset’s (2003) edited book on political ecology focus mainly on smaller scale community and environmental relationships and their links to regional and global scales. Blaikie’s (1985) political ecology analysis of soil erosion in Africa also links local problems to regional and global scales.

This study will start at a meso-scale by examining the role of private and state actors in the current phase of hydropower intensification in Laos. It will show how political and economic mechanisms and narratives drive and enable rapid hydropower development that ignores its social and environmental impacts while empowering powerful actors. By starting at a meso-scale, the study aims to add to the literature on the political ecology of hydropower investment and development in the Basin and at the Sub-Basin level.

A unique aspect of this research will be the use of the Impact Assessment process as a point of inquiry, and as a lens through which we can view and analyse hydropower development in Laos. One of the key instances when the hydropower development process is thrust into the public sphere and exposed to scrutiny is during the IA process. The release of IAs are mandated by law in Laos and a requirement for lending from the World Bank (WB) and the Asian Development Bank (ADB) (Alshuwaikhat, 2005). Actors concerned about hydropower development use the IA report and process, or lack thereof, as a point of critical engagement with the hydropower development process.

This study will examine how actors, narratives, policy statements and mechanisms shape the IA process. The study will draw from a number of case studies of tributary dams and the Xayaburi mainstream Dam in Laos from 1990 to 2013. The analysis will illuminate how actors have constructed narratives to legitimise their agendas, and have drawn power from a lack of transparency and accountability within Laos to benefit from hydropower projects. By studying how actors have controlled and moved within the space surrounding hydropower development and the IA process, the study aims to shine light on the broader closed nature of the hydropower development process (See Figure 1-2).

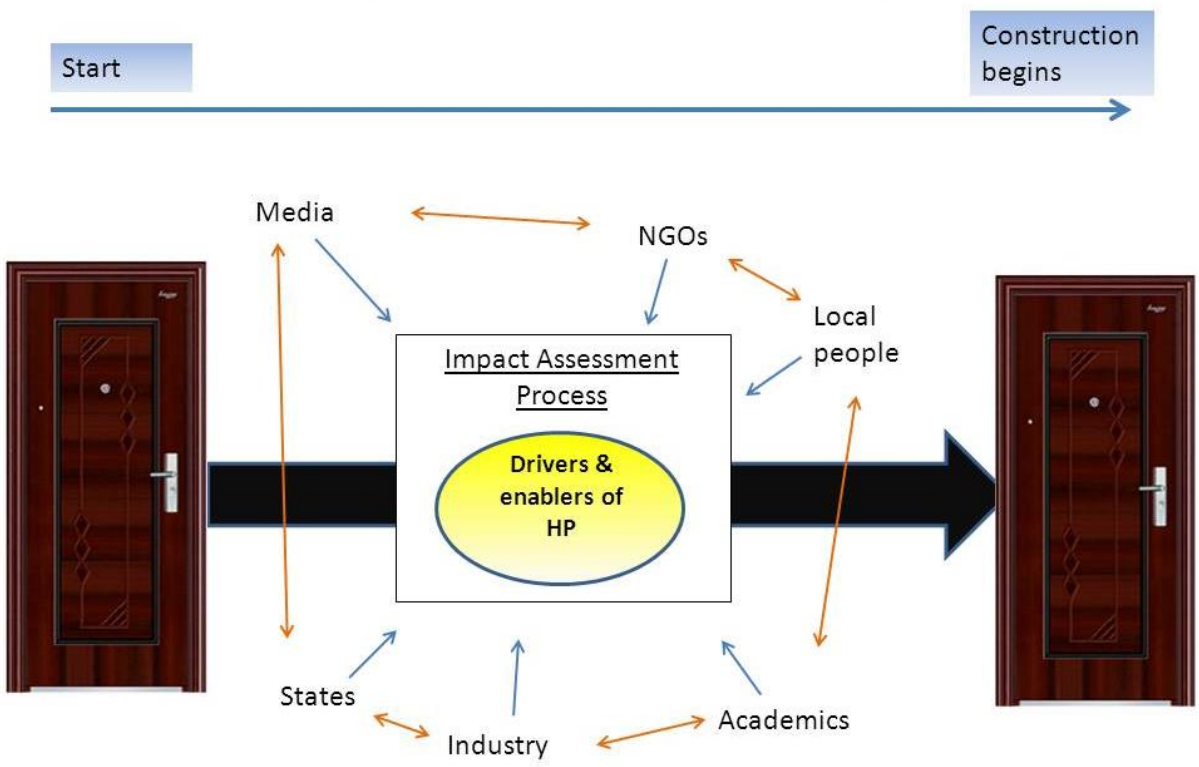

Figure 1-2 Using the Impact Assessment process to understand the drivers and enablers of hydropower development.

In Figure 1-2, the closed doors and black arrow represent the lack of transparency in hydropower development in Laos. The square box of the Impact Assessment process is surrounded by the actors that engage with it and with each other, as they contest or defend the decisions relating to dam development. By examining the power relations and politics that shape the highly politicized and non-transparent process of the IAs, the drivers and enablers of hydropower investment and construction in the Basin come to light as depicted by the yellow sphere.

While this study focuses on hydropower intensification in Laos with insights from the Mekong Basin, it does not focus on the entire Basin. The 800,000 square kilometre Mekong Basin's is shared by six riparian states: China, Burma, Thailand, Laos, Cambodia, and Vietnam (Dore, 2003; see Figure 2-1). Researching the drivers and

enablers in all six countries was deemed to be impractical due to the Basin's size, diversity and complexity. The focus of the research, given its hydrological and geographical significance is in the Lower Mekong Basin, specifically in Laos. Laos contributes 35% of the flow to the Mekong River and, as a result, the country is at the centre of the active debate on hydropower development with over 100 tributary and nine mainstream dams proposed or under construction (Dore, 2003; See Figure 1-1). Thailand, China, and Vietnam, along with other regional and international actors are key players in Laos's hydropower. Moreover, the country is home to dozens of international consultants and NGOs working on hydropower-related impact assessments.

The temporal focus of this study is from the second half of the 1990s to June 2013[2]. The second half of the 1990s encompasses some of the earliest hydroelectric development in Laos. Attention will also be paid to antecedent hydroelectric development and water resource management processes as these established the ground for development in the Mekong Basin since the 1950s. The complexity of development over the past 60 years means that the Mekong hydropower debate is very dynamic. Thanks to work with the Challenge Program on Water and Food (CPWF), I have been able to visit the Region frequently to update the thesis during the final drafting of the study.

In this chapter, section 1.2 outlines the research problem, the methodology, and the theory; section 1.3 briefly introduces the research questions that will guide the study; section 1.4 highlights the policy relevance of the research; and, finally, section 1.5 explains the structure of the thesis.

[2] The end point of the study is June 2013 as it is the final research year of the PhD.

1.2 Introduction of the Research Problem

1.2.1 The Research Problem

Over 60% of the planet's freshwater resides and flows within transboundary rivers and aquifer systems, and approximately 40% of the world's population lives within these basins. Within the 263 transboundary basins around the world approximately two thirds span developing economies. It is in the developing economies of Asia, Africa, and Latin America, along transboundary rivers, where most of the remaining hydropower development potential exists. According to a 2011 International Energy Agency (IEA) report, global hydropower could grow as much as 85% by 2050, an increase of 150 to 200 GW of new generating capacity (IEA, 2011). In 2011, Chinese state-owned hydropower companies alone, such as Sinohydro Corp. and Dongfang Electric Corp., financed by Chinese banks, were constructing approximately 300 projects in 78 countries worldwide (Hackley and Westhuizen, 2011). The current global resurgence in hydropower is being driven by increasing demands for clean energy, cheap electricity, and new sources of investment and potential profits (IEA, 2011; Hackley and Westhuizen, 2011).

Hydropower is a potentially cheap source of electricity with low greenhouse gas emissions compared to burning hydrocarbons (Barros et al., 2011). However, dams can also have significant negative impacts. They can displace populations, destroy cultures, and alter the flow, temperature, water quality, sediment loads, and ecosystems that depend on water, rendering it unusable for irrigation, environmental services, fisheries, and livelihoods (WCD, 2000).

The Mekong Basin has not escaped the current global hydropower expansion. Up to the mid-1990s, the Mekong River and its tributaries had remained one of the least dammed large transboundary river systems in the world (Hirsch, 2004). In 1995, the Manwan Dam became the first mainstream dam and following the recovery of the

Asian Financial Crisis many tributary dams have been built across the Upper and Lower Basin. Current hydropower development in the Basin includes plans for over 150 dams, including 11 mainstream dams (King et al. 2007). Laos is at the centre of the Basin's hydropower expansion with over 100 tributary and nine mainstream dams planned or under construction.

In contributing to the extensive research on the Mekong Basin hydropower, Sneddon and Fox (2006) used a political ecology approach to demonstrate that in the Mekong, as in many areas of the world, water is a resource that is managed by powerful actors. In the Mekong, powerful actors construct geographical scales and narratives to legitimize their activities in the Basin. Political and economic mechanisms also empower actors and control the space from which debates over development emerge. Cooperation between powerful river basin actors often occurs under the guise of 'development', 'flood control', 'modernization', or 'country building', which can lead to the degradation of natural resources and the destruction of livelihoods.

Hirsch (2004), Lebel et al. (2005), and Molle et al. (2009) have all been critical of hydropower development in the Mekong Basin arguing that without proper planning, mitigation and engineering, the social and environmental costs of hydropower will be devastating for the Region. The majority of the literature has dealt with the impacts of hydropower on the environment and local people, and on the failures within the Mekong River Commission (MRC), the regional basin organization. A review of this literature and the main topics covered by it forms part of Chapter 2.

The current era of dam development has changed the hydropower development process in the Basin as new actors, drivers and enablers have emerged. As Foran et al. (2010) stated, the drivers and structures, which determine where HP facilities are located, and how they are developed and managed, are typically obscure in the Basin. In the Mekong, the majority of the hydropower decision-making and development

process occurs behind closed doors (Kheang and Sokbunthoeun, 2009; McNally et al., 2008). Furthermore, Foran et al. (2010) identified that little is understood about the private sector's increased role in hydropower development.

This research aims to understand what is driving and enabling the rapid hydropower expansion in Laos. For the purpose of this study, 'drivers' are the processes or elements that influence and motivate actors in the Region to construct, invest in and approve hydropower dams. Enablers are understood as structures and mechanisms, both within and outside institutions that facilitate actors who are driven to build hydropower. This research is informed by an extensive literature review and previous work experience in the Basin. Data was collected during comprehensive fieldwork, including over two three month long trips to the Region in 2011 and seven, short (approximately 2 to 3-week) trips throughout 2012 and 2013.

The original contribution of the thesis is twofold. First, it examines the narratives and mechanism that led to the ground breaking ceremony on the Xayaburi Dam, which began construction in November 2012. Second, the study provides the first comprehensive, meso-scale, political ecology critique of hydropower development in Laos. The study illuminates the mechanisms that drive and enable the differences between the rhetoric and reality of hydropower development. The research shows that the polarized debate surrounding hydropower, the outcome of which is so important for the future of the Mekong Basin and its peoples, has been constructed to allow contending actors to legitimize their own agendas. It will be shown that in many cases, hydropower projects have been built because they benefitted international and regional elites. Their access to political power, corrupt practices, policy influence, and regional control more generally come with serious consequences for the environment and for the livelihoods of much of the Basin's population. These insights provide lessons learned that are relevant to global autocratic states developing their natural resources, to policy makers and to civil society exploring leverage points to evoke change.

1.2.2 The Impact Assessment Process and its Role in the Mekong

The purpose of this paper is not to critique and contribute to the vast literature analysing impact assessments tools or processes. Rather, as explained above, this study uses the Impact Assessment process as a lens, a key engagement point for actors, to understand the drivers and enablers of hydropower development in the Basin. Whatever conclusions that emerge on the value of impact assessments will contribute at a secondary level to the main analysis of drivers and enablers of hydropower development.

Although many definitions of Impact Assessment techniques exist, there are a number of common features. Mitchell (1997) states that IAs should: identify the objectives and goals of the project; describe the environmental and social changes that might occur without and with the development; identify actions to mitigate or eliminate negative impacts and highlight areas for monitoring. In identifying impacts it is important to remember that they have a temporal dimension, and that developments may be modified during the planning stages or changes may occur in the social or natural environment.

The dominant form of IAs in the Mekong are Environmental Impact Assessments (EIAs). EIAs can be defined as

> "a process for identifying the likely consequences for the bio-geophysical environment and for man's health and welfare of implementing particular activities and for conveying this information, at a stage when it can materially affect their decision, to those responsible for sanctioning the proposals" (Wathern, 1988:6, after Munn, 1979).

The definition of EIAs encompasses both environmental and social factors. Literature and practice, however, suggest that EIAs have shifted away from social impacts to primarily focus on measuring biophysical environmental impacts (Jay et al., 2007).

According to Jay et al. (2006) a measure of EIAs success can be determined by the degree to which environmental considerations are taken in account during decision-making, and if EIAs result in restoring and maintaining environmental quality.

EIAs have been critiqued widely in the literature (Peets, 1999; Benson, 2003; Christensen P, Kørnøv L, Nielsen, 2005 etc.). Jay, Jones, Slinn and Wood's (2007) past and present review of EIAs states that the main critiques of EIA's are in relation to their inconsistent prioritization of factors and the inherent bias in the interpretation of impacts. Literature on the concepts, methods and practice of the Impact Assessment process is also substantial (Tilleman, 1995; Cashmore, 2004). IAs are framed according to scientific principles, however, the issues they address are subject to many political and financial conditions that significantly affect their implementation (Beattie, 1995).

Although recognized as an imperfect tool. EIAs are widely used in Laos (Campbell et al., 2011). Laws and policies in Laos require that the impact assessments are participatory and transparent and once completed, that they are released to the public (see Chapter 6). The reality is very different.

1.2.3 The Research Questions

First main question

What are the key narratives that legitimize the political and economic structures that drive and enable hydropower development in the Mekong Basin at the national and basin scale?

Subquestion

What new actors have emerged and how have roles changed in the current phase of hydropower transformation in Laos?

Second main question

What are the key institutional structures and mechanisms at the national and regional basin scale that have empowered certain actors over others in the Impact Assessment process, project approval and construction of hydropower development projects?

1.3 Policy Relevance

The study is topical and policy-relevant. Globally, hydropower produces approximately 21% of the world's energy (Renewable Global Status Report, 2007). There are over 45,000 large dams in the world (>15 m and/or reservoir volume > 3M m3) holding back 15% of total annual global river runoff and dams contribute 12-16% to global food production (WCD, 2000).

Hydropower is slated to grow by over 85% by 2050 (IEA, 2011). Importantly, this new wave of hydropower investment and construction is being developed in some of the most bio-diverse areas on Earth. The majority of such activity is associated with transboundary river systems.

Hydropower is a key part of the Water-Energy-Food Nexus (Falkenmark and Rockstrom, 2004). Water is necessary for life, but it requires large amounts of energy to lift, move and process. In the developing world, this energy is often derived from

human or animal power; however, as societies modernize, mechanical or electrical energy is used.

Water is also essential to make use of energy. Nuclear power, oil, gas or coal-fired plants, and thermal generation all require vast amounts of water in their operation. In 2000, thermoelectric power generation accounted for 39% of all freshwater withdrawals in the U.S. (USGS, 2004). Hydropower uses water as a direct input into the energy process.

Water and energy are also used to grow, transport and produce food. In the Mekong, the availability of water and hydraulic head[3] in the Basin's extensive river systems has fostered the development of the electricity sector. Hydropower dams have spurred the growth of long-distance electricity grids between cities and countries. The comparatively cheap energy produced from hydropower have fuelled the development of cities like Kunming, Bangkok, Hanoi and Ho Chi Minh, making it important to the energy security of the Mekong Basin states.

Economic and population growth and urbanization are key drivers in electricity demand. With increasing oil prices and concerns surrounding fossil fuel emissions, hydropower has been put forward as a green energy. It is currently the world's largest renewable energy source with over 170 GW of hydropower under construction today, 76% of which exists within Asia (IEA, 2011).

Hydropower development in the Mekong directly impacts food. In the Mekong, up to 80% of the animal protein is derived from wild fish (Hortle, 2007). Approximately 90% of the wild fish in the Basin are migratory (Barlow et al., 2009). These high

[3] Hydraulic head or piezometric head is a specific measurement of liquid pressure above a dam.

percentages of migratory food sources flowing through the river means that hydropower development can significantly impact the food security of millions of people who depend on the Basin's ecosystem services. It is within the Water-Energy-Food Nexus that the debate of Mekong hydropower development revolves.

By systematically exploring the political, social, economic and environmental drivers and enablers behind hydropower development in Laos the study will be useful for advocacy groups, decision-makers, and industry both in the Mekong Basin and internationally. NGOs can use the findings from this study to engage more effectively with decision-makers, before and after impact assessments processes. Decision-makers, both in industry, Government and donor organizations, can use the research findings to gain a better understanding of who stands to benefit and who stands to lose from current hydropower intensification, and why.

1.4 Structure of the Study

The structure of the study has been shaped by the data collected during fieldwork. By living in Laos and by being based at the Challenge Program and Water and Food office in Vientiane, it was possible to identify a wide range of actors at a 'grassroots', regional and international level who have been involved in hydropower development across the Basin. Interactions with these actors through both formal and informal meetings flushed out three key areas of research that form the empirical chapters of the thesis: one, the construction and use of narratives to legitimize and define the space in which hydropower is debated; two, the structures and mechanisms within the Lao state that have allowed hydropower to be built in ways that favours powerful groups at the expense of local people and the environment; and three, the unfolding debate and controversy surrounding the Xayaburi Dam and its value as a representative case study in relation to the previous two points of inquiry.

The thesis is divided across eight chapters. Chapter 2 introduces the context for the study. The chapter overviews the Basin and provides a background to the current expansion of hydropower development. This chapter highlights the historical role of actors within the Basin providing the backdrop for the changes that are analysed in the proceeding chapters. The chapter further provides an overview of some of the key existing academic studies into Mekong Basin hydropower and its impacts.

Chapter 3 introduces the theoretical framework that guides the research. Political ecology is increasingly used to examine water management and its relevance in examining environmental change, politics and power in hydropower development are shown. This chapter shows political ecology's strengths in critically examining narratives, mechanisms and scale. It further demonstrates how the political ecology approach is applicable in the meso-scale and how it will be employed to illustrate the drivers, enablers, winners, and losers of hydropower development in the Basin.

Chapter 4 explains the methodological framework that accompanies the theoretical framework and outlines the methodological constraints of the study. The methodology combines case studies, document data analysis, discourse analysis, grounded theory, and interviews. Research for the study is designed to be flexible and reflexive in order to adapt to the sensitive nature of the topic.

Chapters 5 and 6 are the first two empirical chapters. Chapter 5 critically examines narratives and the changing role of actors in hydropower development. The chapter draws from policy statements surrounding hydropower dams and the Impact Assessment process from across the Basin with a focus on Laos. This chapter uses political ecology to examine the mechanisms that construct narratives. Chapter 6, examines the mechanisms and structures within Laos that enable hydropower dams to be constructed with little or no transparency or accountability. This chapter draws heavily on interviews from consultants working in the Region. A number of case

studies are used to demonstrate the impact of these mechanisms on hydropower development.

Chapter 7 is the final empirical chapter. The Xayaburi Dam is presented as a representative case study to illustrate the evidence presented in Chapters 5 and 6. This chapter uses the Impact Assessment process surrounding the Xayaburi Dam debate as its focal point.

Finally, Chapter 8 presents an analytical summary of the study by reviewing the research questions. Chapter 8 further discusses the research limitations as well as identifying areas for future research.

2 Context and Background to the Mekong Basin and its Hydropower Development

"The hazard of building concrete and steel structures that meet technical requirements and fall short in their promotion of a stable life in the Basin is great." White et al. (1962) on Mekong Basin hydropower development.

2.1 Introduction

Beginning with a snapshot of the importance of the Mekong Basin to its riparian states, this chapter goes on to outline the political, economic, and social diversity within the Region. Providing an overview of existing water resource development and early actors in the Basin helps to shine light on the current state of hydropower development. This chapter concludes by providing a brief overview of hydropower literature with specific relevance to hydropower development along with a literature review of Impact Assessment techniques and practices and their role in the Mekong Basin. While the overall study focuses on Laos, the Chapter provides an overview of the entire Basin (excluding Myanmar) to provide a context to the analysis. It should be noted that the historical record outlined in this chapter is presented as factual rather than as a narrative. This was done to avoid a lengthy introduction and focus the main analysis on the narratives and mechanisms presented in the empirical chapters.

2.2 The Mekong Basin and its Importance to the Riparian States

As the world's twelfth longest river (and seventh longest in Asia), the Mekong River is an iconic river. At 4,300 km in length draining a Basin 800,000 km², the Mekng flows from its headwaters in the plateaus of Tibet through China, Myanmar, Thailand, Laos, Cambodia, and the southeast of Vietnam before spilling into the South China Sea (See

Map 1). The Mekong is a flood pulse river, affected strongly by seasonal flows. The total annual flow of the Basin is 475 million m³ of which 80% to 90% is delivered during the flood season (Hori, 2000). To put this into perspective, during the flood season a journey through its system takes approximately three weeks, whereas that same trip during the dry season could take three months (ibid).

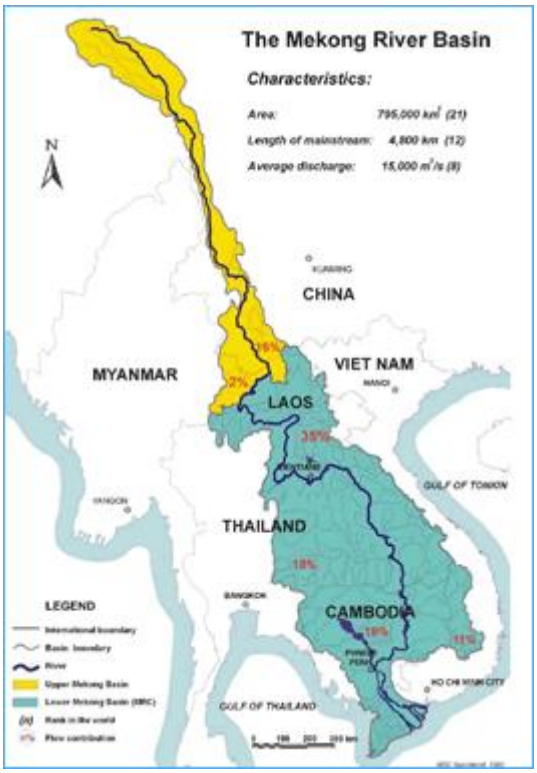

Figure 2-1. Map of the Mekong River Basin. Source: World Bank Database.

Known as 'the rice basket of Southeast Asia', the Mekong Basin is home to a population of 70 million with 90 distinct ethnic groups (Galipeau et al., 2012). With its extensive wetlands and floodplains, the Basin supports the largest inland fisheries in the world with an annual catch of 2.6 million tonnes and over 500,000 tonnes of other aquatic animals (e.g. aquatic insects, amphibians and molluscs) valued annually at between $3.9 to $7 billion (Hortle, 2007). Over two-thirds of the Basin's population are involved in fishing for their livelihoods or to support food security (Mekong River Commission, 2003b). In the Lower Mekong Basin, aquatic resources make up between 47 and 80 % of animal protein in rural diets (Baran and Ratner, 2007).

Biodiversity in the Basin is estimated to be second only to the Amazon with over 1,200 species of fish and a number of endemic and endangered species such as the giant Mekong catfish, which can grow to three metres and can weigh over 300 kilograms, the giant Mekong stingray, and the Mekong river dolphin (Barlow et al., 2008). To the economies of Southeast Asia, the Basin is a source of wealth and power that are underpinned by the hydropower, transport, and irrigation associated with the river and its tributaries.

Table 1.1 demonstrates the diversity of the six Mekong riparians in terms of demographics, economics and energy. The remainder of this introductory section presents a snapshot of the political, geographic, economic and hydraulic diversity within the Basin countries. Myanmar is excluded. This snapshot provides an indication of the heterogeneity and complexity inherent in the politics and economics of water resource management of the Basin that will be explored in further depth in the empirical chapters of this research.

Table 1-1 Demographic, economic and energy-related characteristics of the six Mekong riparians.

	China	Myanmar	Thailand	Laos	Cambodia	Vietnam
Overall population, 2010[a]	1,338.3	48.0	69.1	6.2	14.1	86.9
Population Mekong Basin						
Lower MB, 2007 in Mio (total 60Mio)[b]			23.1	5.2	13.0	18.7
Share of Mekong-population in %[c]	16	1	34	7	14	28
GDP, 2010[a,f]						
In mio. current USD	5,878.6	42,953	318.9	7,5	11.3	103.6
Annual growth in %	10.3	5.3	7.8	8.4	6.7	6.8
Per capita (current USD)	4,392.6	701.9	4,612.8	1,208.3	802.3	1,191.4
Energy consumption[d]						
Average annual growth in energy consumption, 1993–2005 in %	9.2[g]	8.5	6.6	8.2	1.1	10.2
Per capita electric power consumption, 2005 kWh, (share of residential sector in total electricity consumption)	1,252 (12.9)[g]	78 (40.0)	1,950 (21.0)	187 (53.0)	56 (52.0)	573 (42.0)
Fossil fuel energy consumption (% of total)	86.9	31.0	80.6	No data	29.7	54.0
Alternative and nuclear energy (% of total energy use)	3.5	2.2	0.6	No data	0.1	3.8
Combustible renewables and waste (% of total energy)	9.6	66.8	18.7	No data	69.6	41.8
Hydro-power projects[b,e]						
Mekong main stem						
Finalised number	4[g]	–	–	–	–	–
Planned number	4[g]	–	–	9	2	–
Mekong tributaries						
Finalised number	–	4	7	16	1	14
Planned number	–	–	–	73	13	3

The weighted average annual per capita consumption in the Greater Mekong subregion (GMS) is 920 kWh (World: 2,701 kWh, OECD: 8,795 kWh, US: 14,240 kWh)

[a] World Bank (2011)

[b] MRC (2010)

[c] Will (2010)

[d] ADB (2009)

[e] MRC (2009): Lower Mekong Hydropower Database

[f] Economy Watch (2012)

[g] Yunnan Province of PRC

Source: Kuenzer et al. (2012)

2.2.1 China

Led by a single party communist Government, and with a population of 1.3 billion, China is a political and economic powerhouse. In 2012, China's Gross Domestic Product (GDP) was $5.9 trillion and its per capita income is $7,640 (World Bank, 2012). In 2012, China's growth rate was 10.4% with 2.9 % of the population living below the poverty rate (World Bank, 2012).

The importance of the Mekong in China is within Yunnan Province where the Mekong provides electricity through dozens of hydropower dams as well as water for irrigation. Approximately 10 million people live within the Mekong Basin in Yunnan Province. In China, where the river and Basin are born, the Mekong River is called the Lancang Jiang. As shown in Figure 2-1, the Basin is narrow as it passes through China dropping over 4500 metres through deep gorges before beginning to expand and slow down once the river reaches past the southern Yunnan Province border.

Although almost half of the Mekong River's length passes through China, however, the contribution to flow is only 16%. This small percentage is important because it represents 34% of the flow during the dry season (Nesbitt et al., 2004). As the Mekong flows south and the Basin begins to take shape, it skirts the border with Myanmar, gaining 2% of its flow before entering into Laos where the mountainous landscape and dozens of tributaries swell its volume (Nesbitt et al., 2004).

2.2.2 Laos

Laos is a single party communist state with a population of 6.5 million covering an area of 236,800 km². Laos' GDP is $7.3 billion with a per capita of $2440 and a growth rate of 8.5% (World Bank 2012a). Its primary exports, estimated at $2.258 billion, are gold, copper, electricity and wood that mainly go to China, Thailand, Vietnam, Switzerland, the United Kingdom and Germany. Approximately 80% of the population is rural and 27.6% exist below the level defined by the World Bank (WB) as living in poverty (World Bank, 2012a).

The Mekong and its tributaries are the lifeblood of Laos with approximately five million people living within the Basin. In fact, Laos is situated almost entirely within

the Mekong Basin with the river gaining 35% of its flow within Laos' borders (Hirsch, 1995). Laos has a high population of ethnic minorities who live close to the mainstream or the Mekong tributaries, relying primarily on wild fish and subsistence agriculture for their food security (Nguyen-Khoa et al., 2005). For example, 71% of rural households rely on fisheries for either subsistence or as a source of income, while fish provided by the Basin are second only to rice for food security and income (Nguyen-Khoa et al., 2005). As the Mekong River travels south it forms the border between much of Western Laos and Thailand.

2.2.3 Thailand

Thailand is a democratic upper middle income country with a population of almost 70 million and a landmass of 513,120 km². The Thai GDP is $318 billion and the country sustains a growth rate of 7.8% and a per capita income of $8,190, the highest in Mekong Basin (World Bank, 2012b). Thailand plays a pivotal role in South-East Asian regional trade, with a 17% share in commercial services, a 20% share in imports and a 15% share of regional exports (UNESCAP, 2012). Thailand contributes 18% of the Mekong's flow predominantly with waters emanating from the mountainous North of Thailand. In the N.E. of Thailand, where the Basin covers a significant tract of farmland, the semi-arid climate and intensive agriculture of the Mun and Chi Basins drain 15% of the Mekong Basin (Hirsch, 1995). Approximately 25 million people live within the Mekong Basin in Thailand. Agriculture, primarily rice, and fishing dominates this segment of its rural economy. The Mekong then continues its journey south into Cambodia.

2.2.4 Cambodia

Cambodia is a low income country with a population of 14.8 million covering an area of 181,035 square kilometres. The Cambodian GDP is $11.2 billion and the country sustains a growth rate of 6% and a GNI of $2080 (UNESCAP, 2012). The Government is a constitutional monarchy that operates as a parliamentary representative democracy, but the Prime Minster of Cambodia, Hun Sen, has held office since 1985. In Cambodia, 86% of the country is located in the Basin and this area is home to approximately 10 million people.

In Cambodia the river landscape is mainly flat and the river forms into a delta as it moves past Phnom Penh. Cambodia contributes 18% flow to the Mekong River. The great Cambodian Lake, Tonle Sap, is fed by the Mekong (Kummu, and Sarkkula, 2008). Tonle Sap grows seven fold from 2,500 square metres and a depth of 0.5 metres to 16,000 square metres and depth of seven to ten metres during the rainy season (ibid). The lake supplies 15% to 20% of the Basin's fish catch and is an important feeding ground for fish (Lamberts, 2006). The Cambodian population is heavily reliant on fish for food security with 80% of the population's animal protein deriving from wild fish (Hortle 2007). Finally, the river enters Vietnam, through the Mekong Delta.

2.2.5 Vietnam

Vietnam is the furthest downstream riparian. It is a lower middle income country, one party communist state with a population of 86,928,000 (World Bank, 2012c). Vietnam's economic growth rate is 6.8% and its GDP is $282.9 billion with a GNI of $1,160 (World Bank, 2010). The country covers an area of 331,210 km and contributes 11% to the flow of the Mekong River. The importance of the Mekong Basin and its water resources to Vietnam's food and economic security cannot be underestimated (Käkönen, 2008). The Mekong Delta contains 37% of Vietnam's

cultivated land area, producing more than 50% of Vietnam's fishery, 60% of the country's fruit and over 30 million tonnes of agricultural products (ibid). The Delta is home to a population of approximately 20 million.

The country profiles above highlight the political, economic, hydraulic and geographic diversity within the Mekong Basin and point to the complexity of Basin-wide water resource management and hydropower development. These political and economic elements have had an extended impact over water resource governance of the Basin, which has a long history of development stretching back over a century.

2.3 Overview of the Existing Water Resource Development and Early Actors in the Mekong Basin

2.3.1 Pre-development Era of the River

The 1856 Treaty of Friendship, Commerce and Navigation and the 1893 Treaty for Regulating the Position of the Kingdom of Cambodia were among the first foreign bilateral agreements in the Mekong Basin. These agreements, and subsequent treaties in 1926, 1937, and 1950 focused on the role of navigation and established the thalweg[4] as the precise border between Thailand and Laos. During this period, the French colonial authority stressed the importance of freedom of navigation to keep open trade routes across the Basin, mainly for timber transport. It was also hoped that these river trade routes would eventually provide access to China's wealth and buffer British colonial expansion in Burma (Osborne, 2006).

In 1950, France, Cambodia, Laos, and Thailand signed an agreement to use the waters flowing in their territory for hydropower and irrigation on condition that these

[4] Thalweg is a fluvial geomorphology term that denotes the deepest continuous inline within a watercourse or valley.

interventions did not impact the legitimate interest of the other countries, or navigation.

As Salman (2007) states, the focus on navigational uses of watercourses was prominent during the 19th century as many nations were concerned with trade in raw materials. In developing countries the lack of infrastructure meant that rivers were sometimes the only way to move goods and people quickly across large land areas. With the outbreak of WWII in the Region in the 1940s and increasing demands for energy to process materials and supply electricity to growing cities, non-navigational uses of watercourses began to take on new importance (ibid). It was during this time that the Mekong River's hydropower potential began to be recognized.

2.3.2 Early Development of the Basin and the Geopolitics Surrounding the Formation of the Key River Basin Organization - the 1950s to the 1990s

The Mekong has a long history of development and dialogue among the lower riparian countries dating back over half a century. The first step came in 1957 as part of an economic development drive following the end of the first Indochina war. The United Nations regional office in Bangkok, the United Nations Economic Commission for Asia and the Far East (ESCAFE) studied the Basin's hydroelectric and irrigation potential and emphasized the need for cooperative development including the establishment of a joint body for exchanging information and development plans between the riparian states. ESCAFE employed the services of the US Bureau of Reclamation in 1955 to study potential hydropower sites in hopes that the Mekong could be developed into an Asian Tennessee Valley Authority (Osborne 2006).

Three key studies guided hydropower development at this time. First, in 1957, the UN Economic Commission for Asia and the Far East (ECAFE) released the *Development of*

Water Resources in the Lower Mekong Report. This report recommended the development of the Basin's resources through the construction of a number of multi-purpose dams to supply irrigation, generate hydropower, and control flooding. The report reflected the dominant view of the time that dams were modern and progressive (Osborne, 2006).

In 1957, as a result of this initial ECAFE study, Thailand, Laos, Cambodia, Vietnam and an observer from the United Nations Development Programme (UNDP) signed an agreement, establishing the Committee for the Coordination of Investigations of the Lower Mekong Basin (Mekong Committee). China was not invited because it was not a member of the United Nations at the time and Burma was preoccupied with internal politics. From the outset, the Mekong Committee's task was to ''promote, coordinate, supervise, and control water resource development projects in the Lower Mekong Basin'' (Nguyen, 1999:156). The Mekong Committee was the UN's first involvement in the planning and development of an international river basin (Jacobs, 1995).

Soon after the UN became involved in the Basin they conducted their own study on development. This second study, entitled the *Programme of Studies and Investigation for Comprehensive Development of the Lower Mekong River Basin* (United Nations, 1958). The UN study, also known as the Wheeler Report, was headed by Raymond Wheeler of the US Army Corps of Engineers. The Army Corps were active in much of the United States dam development in the early 20th Century (Jacobs, 1995). This report reaffirmed the Mekong's huge hydropower potential and outlined an ambitious plan to develop both mainstream and tributary dams across the Basin. A precursor to this plan, however, was a five-year data collection program to guide project planning. This report, to some degree conflicted with the ECAFE report. While both reports supported economic development including hydropower dams, the ECAFE report was focused more on tributary dams and smaller scale projects. The UN study, on the other hand, was more cautious and was informed by existing, detailed

studies. As Nguyen (1999:57) states “For some, the Wheeler Report’s goals appeared much too ambitious and beyond the member countries’ capacity.”

The third and final report that guided development at this time was a Ford Foundation-sponsored report by Gilbert White (White et al., 1962) entitled, *Economics and Social Aspects of Lower Mekong Development*. The White Report went beyond the engineering and technical considerations of the previous two reports to look at the potential environmental and social impacts of development. For White (1962), the report was a way of illustrating Asia’s first large-scale efforts to study the potential economic, institutional, and social impacts and benefits of development prior to it occurring.

From these reports the Mekong Committee developed an agenda that promoted irrigation, hydropower, and flood control projects as a form of poverty alleviation. During the 1960s, the United States was heavily involved in the Mekong Committee funding as the largest non-riparian donor, with Thailand as the largest regional donor. The United States’ interest in funding the Mekong Committee and its development projects stemmed primarily from its desire to curb communist influence in the Region (Chi, 1997). Hirsch (2006) states that the US was pushing dams as a way to pull the economies of the Region out of poverty, thereby stemming the spread of communism.

Hydropower development on the Mekong progressed slowly. The Mekong Committee completed a small number of minor tributary irrigation, multi-purpose, and hydropower dams in Laos and Thailand during the 1960s and early 1970s, but many projects were inhibited by a lack of finance within the Region, a lack of detailed economic and environmental baseline studies as well as lack of skilled technical workers (Jacobs, 1995). The Committee also began flood forecasting and Basin-wide data collection programs.

The stage was set for hydropower to begin in earnest from the 1970s. At this time, the Mekong Committee drafted the Indicative Basin Plan, the first Basin Development Plan for the Region. This plan recommended 180 possible projects including four mainstream dams. Political tensions, however, in the 1970s including conflict in Laos, Cambodia, and Vietnam reduced the Committee's funding and once again constrained the development of projects.

In 1975, the Mekong Committee ratified the Joint Declaration of Principles that further defined the principles, norms, rules, and decision-making procedures of development. This Joint Declaration stated that mainstream waters could not be developed without prior approval of the other Basin states through the Committee; this gave each member a veto power over mainstream dam development (Mekong Committee, 1975).

In 1976 and 1977 Laos, Cambodia, and Vietnam representatives were absent from the Committee due to a shift in regional governments and disruptions associated with armed regional conflicts. Although Laos and Vietnam re-joined in 1978, Cambodia did not. Cambodia's split from the Committee meant that mainstream dam development could not legally proceed because of the Joint Declaration required approval from all members before mainstream waters were dammed.

From 1978 to 1994, the Committee re-established itself as the Interim Mekong Committee (IMC), consisting of Thailand, Laos, and Vietnam. Moving away from Basin-wide development the IMC focused on data collection and domestic projects in the remaining three member states (Jacobs, 1995).

In 1995, after Cambodia's re-joining a lengthy negotiation process was initiated via the Mekong River Commission (MRC). The MRC was established with the Mekong Agreement which, once again, re-engaged the four lower riparian states. During this time China and Burma were asked to join the MRC, but they refused to join as full members and only became dialogue partners in 1996. The MRC's mandate was "to cooperate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin", and "to ensure reasonable and equitable use" of the Mekong River System (MRC, 1995).

2.3.3 The Mekong Agreement and the Mekong River Commission

The lengthy negotiation leading up to the establishment of the MRC saw important changes in the capacity of the River Basin Organization (RBO) to manage mainstream dam development. The early 1990s marked the rapid growth and industrialization of Thailand's economy. This rapid growth accompanied pressure on Thailand to accelerate the development of its hydroelectric power and irrigation resources. These developments, which included plans for Mekong mainstream diversions and dams were not well received by Thailand's neighbours. One such controversial project was the Khong Chi Mun scheme, a large inter-Basin water diversion project in the N.E. of Thailand that proposed to divert large volumes of water from the Mekong, the Chi and Mun river systems through canals to 'turn the Northeast green' (Sneddon, 2003).

Vietnam and Cambodia were concerned about the Khong Chi Mun project and Thailand's ambitions to develop the mainstream. They contended that diverting the Mekong would be harmful to Tonle Sap and the Mekong Delta, the rice basket of Vietnam (Makim, 2002). The conflict of interest between Thailand, Cambodia and Vietnam contributed to a four-year deadlock in negotiations leading to the 1995 Agreement. Thailand's first move was to link Cambodia's re-admission to the process to the re-negotiation of the rules and laws governing the MRC (Posey and Nitsch,

2005). Thailand held a powerful position in this negotiation as an upper riparian with a strong economy. Vietnam and Cambodia were both downstream with important economic and food security (fishing and agricultural) interests to protect. Thailand pushed to remove the UNDP as the executive agent of the body. This helped to neutralize the leadership of the United States and the international community represented by the UN in the Committee (Makim, 2002). Finally, Thailand demanded that the new Mekong Agreement dissolve the existing veto power that each nation had over mainstream dam development.

This was initially opposed by a collation of the three downstream riparian states, Cambodia, Laos and Vietnam. However, Thai bilateral diplomacy eventually won over Cambodia and Laos, and Vietnam was forced to accede to the removal of the veto and its replacement with a 'prior notification' of development.

With the 1995 Agreement the MRC's institutional structure developed into three permanent bodies: the Council, the Joint Committee, and the Secretariat (Figure 2-2).

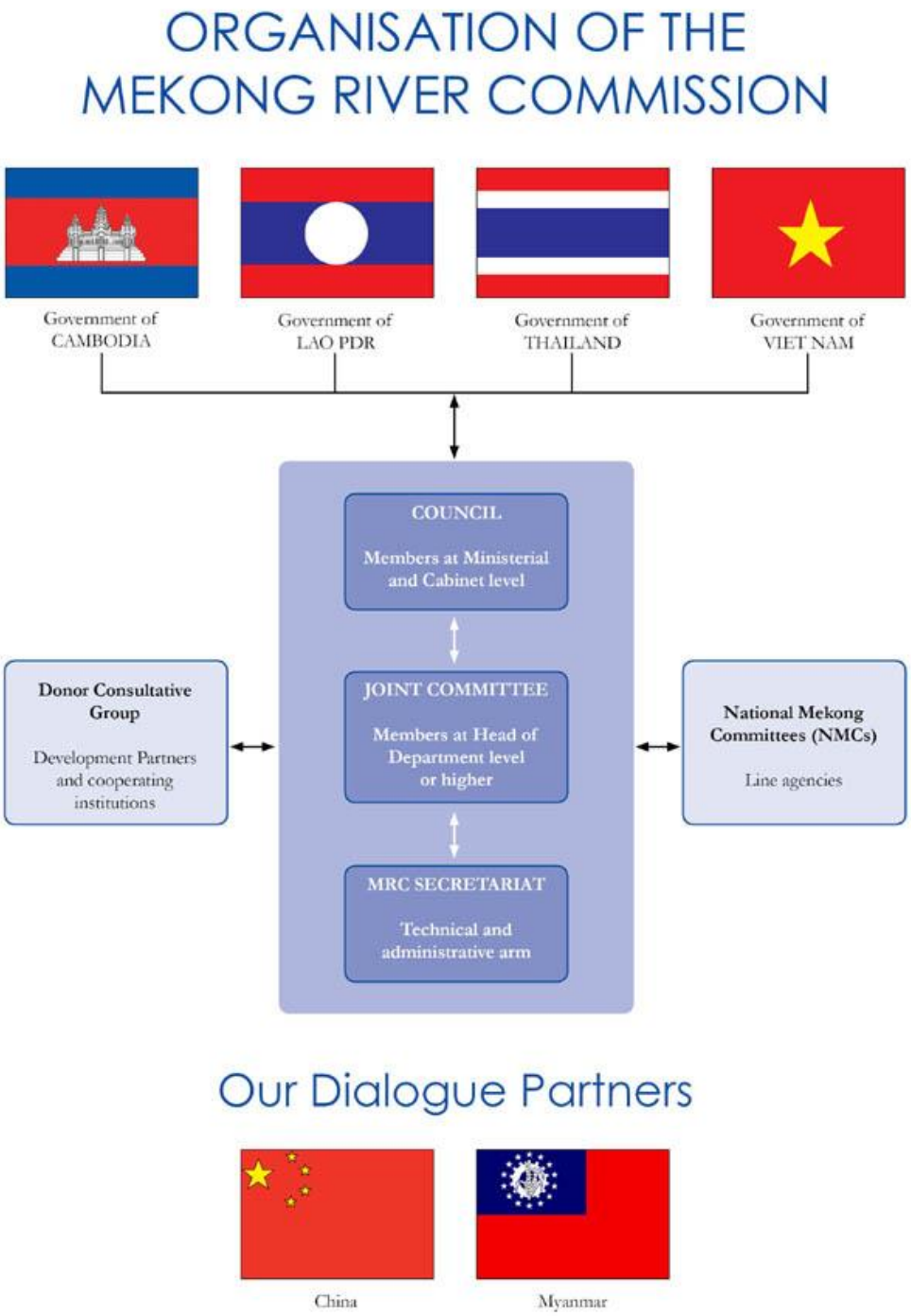

Figure 2-2. Organizational Structure of the Mekong River Commission (MRC, 2009).

As a result of the new protocols, MRC member countries had to now notify each other if they wished to engage in any major infrastructure developments (such as hydropower schemes) on the Mekong or tributaries, particularly if those developments may have significant transboundary impact for people or the

environment downstream. These new protocols are called the Procedures for Notification, Prior Consultation and Agreement (PNPCA) (MRC, 2003).

The PNPCA protocols state that if a country is to build hydropower dams on a Mekong tributary, it must first notify the Joint Committee of the MRC. Any mainstream development, such as the currently proposed 11 mainstream hydropower dams, are subject to notification and a consultation agreement, with the aim of arriving at an agreement by the Joint Committee of the MRC. The National Mekong Committees are the submitting parties. The PNPCA is triggered when the preparation of a mainstream dam advances to the stage where the member country makes a submission to the MRC. In considering proposals for mainstream hydropower developments, the Joint Committee must avoid inter-state disputes by resolving and determining if the development:

- Optimizes water use;
- Provides better benefits than can be derived through cooperation and trade-offs;
- Has an established right of claim against further proposed uses;
- Assesses the potential impacts on multi-stakeholder's rights and interests; and
- Provides for planning security.

(MRC, 2003)

During the wet and dry seasons, specific notification requirements are in place on the mainstream of the Mekong River. During the wet season, intra-Basin uses are subject to notification to the Joint Committee, and inter-Basin diversions are subject to prior consultation with the aim of arriving at an agreement by the Joint Committee. On the other hand, during the dry season, intra-Basin uses are subject to prior consultation with the aim of arriving at an agreement by the Joint Committee. Furthermore, the Joint Committee, prior to any proposed diversion, shall agree upon any inter-Basin diversion project. Should there be a surplus of water available in excess of the

proposed uses by all member states in any dry season (verified and unanimously confirmed as such by the Joint Committee), an inter-Basin diversion of such surplus can be made, subject to prior consultation (Burchi and Spreij, 2003).

Although the PNPCA has removed the power of any member state to veto mainstream dams or diversions of another, the 1995 Mekong Agreement stresses in the statute's definition of terms that the removal of the veto does not amount to a 'unilateral right to use water by any riparian without taking into account other riparian state rights'.

Throughout the early 2000s and up to 2012, the MRC has continued to focus on monitoring and data collection activities and fisheries and flood control programs to develop regional expertise. The MRC has also expanded its mandate to focus on IWRM (an integrated Basin Development approach) and as a leader in the debate surrounding the Xayaburi Dam. The MRC's role as a mediator of development is controversial. It has been criticized for being ineffective and failing to fulfil its mandate. These debates will be examined in greater detail in the empirical chapters.

2.3.4 The Greater Mekong Sub-region Program

Initiated in 1992, the keystone program of the Asian Development Bank (ADB) in the Mekong Basin is the Greater Mekong Sub-region (GMS) Programme. The GMS was created by Cambodia, Laos, Burma, Thailand, Vietnam, and Yunnan Province of the People's Republic of China with assistance from the ADB. The GMS Programme is a private sector led economic cooperation program with a long-term goal "to promote development through closer economic linkages" (ADB, 2009).

The nine priority areas of GMS interconnectivity are transport, telecommunications, energy, tourism, human resources, development, environment, agriculture, trade and investment (ADB, 2012). Projects completed between 1992 and 2011 have totalled costs of approximately $10 billion, about $5 billion has been put forward by the ADB, with the remaining sum being made up through regional and international investment (ADB, 2012).

In terms of hydropower development, the chief initiatives of the GMS Programme have been the Mekong Power Grid and the associated support of the Nam Theun 2 Dam. The Mekong Power Grid is part of the Regional Power Interconnection and Power Trade Arrangements of the GMS Programme. The objective of the grid is to "promote a commercially-based energy system that reliably and competitively supplies electricity to all areas of the Sub-Region in a manner that minimizes environmental and social costs". (ADB, 2011). The grid consists of a series of transmission lines and hydropower schemes to allow Thailand and Vietnam to purchase electricity from Yunnan Province, Laos, Burma, and Cambodia. The ADB has estimated the cost of the grid at $43 billion.

The Nam Theun 2 (NT2) dam is partially funded by the ADB's program and is a component of the Mekong Power Grid. The development of the NT2 (1070MW), which opened in 2010, paved the way for private sector financing and construction of hydropower in Laos by establishing procedures, contracts and tariffs for large-scale investment in the country (see chapter 6). The GMS Program is part of a broader set of regional initiatives to bring the diverse nations of the Region together to synergize mutual economic growth. The Association of South-East Asian Nations, modelled after the European Union, expands beyond the borders of the Mekong Basin to attempt to foster collaboration within South-east Asia.

2.3.5 The Association of South-East Asian Nations

The Association of South-East Asian Nations (ASEAN) was established in 1967 between Indonesia, Malaysia, Philippines, Singapore, and Thailand. By 1999, ASEAN expanded to include Brunei, Laos, Burma, Cambodia and Vietnam encompassing a total of ten countries. The aims of ASEAN can be summarized as the promotion of economic growth, peace and stability across the Region. The principles governing the organization practice non-interference in the internal affairs of member states and respect for states' sovereignty and independence (Tong and Chong, 2010). ASEAN is significantly contributing to economic growth in the Mekong Region. In 2010, the China-ASEAN Free Trade Agreement formed the world's largest free trade area, comprising 1.9 billion consumers and US $4.3 trillion in trade (Tong and Chong, 2010).

In terms of hydropower in the Mekong Basin member countries, ASEAN promotes a renewable energy target of 15% among its members of which hydropower is a key component and hydropower issues, including the Xayaburi Dam, have been on the agenda at regional meetings (Abdullah, 2005). ASEAN has also been a supporter of the ADB's GMS Program and the Mekong Power Grid.

2.4 Current State of Hydropower Development in the Basin

As outlined above, hydropower in the Basin has been under exploration for over half a century, but various combinations of insufficient capital, weak technical capacity, conflict and political instability impeded its expansion. This section offers a brief overview of some of the key issues in hydropower development in the Mekong Basin. These issues are examined in further detail in Chapters 5, 6 and 7. In 1995, following the ratification of the 1995 Mekong Agreement and the reformation of the Regional Basin Organization (RBO), the MRC, it appeared that both mainstream and tributary dam development would gather pace. Shortly thereafter, development plans were

once again put on hold due to the 1997-8 Asian Financial Crisis that precipitated a serious devaluation of S.E. Asian currencies and eventually led to a global economic slowdown.

With the gradual recovery from the Asian Financial Crisis hydropower appeared on the development agenda once again. In 2000, however, the influential World Commission on Dams (WCD) report (2000) called for a rethink about the risks and costs of large-scale dams across the world making hydropower an unpopular target for funding. Adding to the financing issues, from the mid-1990s to the early 2000s, The World Bank (which funded the WCD Report) ceased funding large-scale hydropower projects due to environmental and social criticisms levied by the NGO sector (Park, 2005).

From the mid-2000s, a number of factors contributed to a reawakening of the hydropower agenda both globally and in the Mekong Basin. The hydropower resurgence emerged in part due to a global push for clean, renewable energy sources, increased availability of capital, potential profits, and rising electricity demands.

In 2005, the World Bank returned to large-scale infrastructure development in the region with its funding, along with the ADB, of the Nam Theun 2 project in Laos. In a 2006 influential policy report, the World Bank called for regional hydropower to be expanded and estimated that only 10% of the Mekong Basin's hydropower potential was in use (WB/ADB, 2006). These estimates further state that the Basin has the 'flexibility and tolerance' to handle an increase in hydropower development including mainstream dams (WB/ADB, 2006).

In 2005, there were an estimated 25 hydropower projects completed on the Mekong tributaries with approximately 35 in planning or feasibility stages with two

mainstream dams complete on the upper Mekong River in China; a relatively small number considering the size of the Basin. By 2012, at least 28 more dams were under construction, five mainstream dams were completed in China, and a further 150 projects were identified as probable development sites including 11 mainstream dams on the lower Mekong (see Figure 2-3) (King et al., 2007; Johnston and Kummu, 2012).

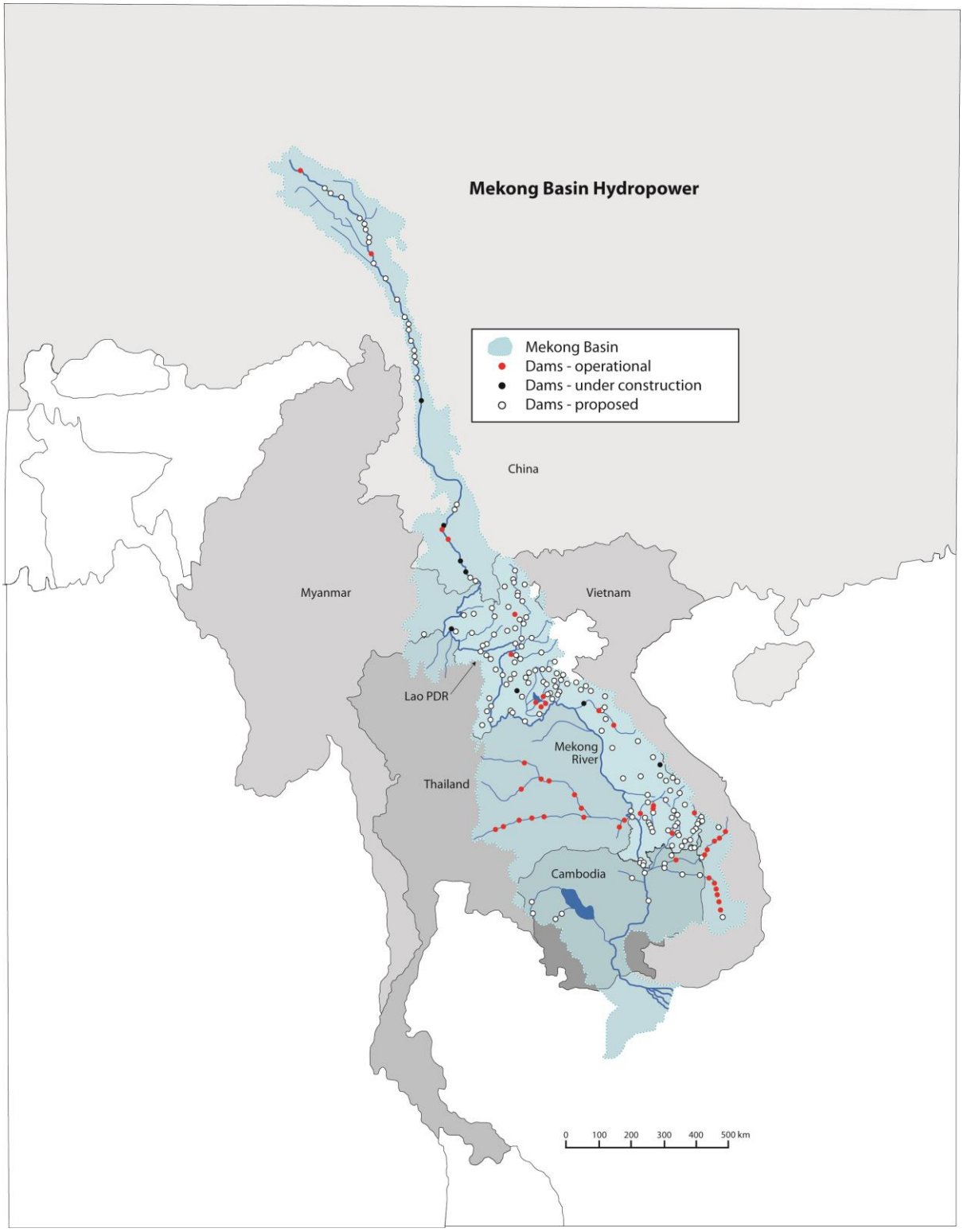

Figure 2-3. Operational, under construction, and proposed hydropower dams on the Mekong Basin. CPWF 2010.

2.4.1 China - Yunnan Province

At the time of writing, the only existing mainstream dams are on the Mekong River were in China. The Lancang Jiang cascade is a series of eight dams, of which five have been completed and two are currently under construction (see figure 2-4.). When completed, the total installed capacity of the Lancang Jiang cascade will be 15,550 MW. The electricity from these dams is slated for eastern China and Thailand through the Mekong Power Grid. There are a further 20 dams planned or under construction on the Lancang Jiang's tributaries (Kummu and Varis, 2007).

All of these dams were completed unilaterally without downstream consultation spurring intense protest from downstream riparian states. Protests culminated in the dry season of 2010, when significantly reduced river levels on the Mekong mainstream below China coincided with the filling of these mainstream dams (Hirsch, 2010). China blamed the low river levels on unusually dry weather patterns, but did agree to increased data sharing and dialogue with the lower riparian states. Although China's contribution to the flow of the Mekong is 16% in gross terms, this represents 35% of the dry season flow and over 55% of the sediment flux, which is vital to the ecosystems of the Basin (Kummu and Varis, 2007).

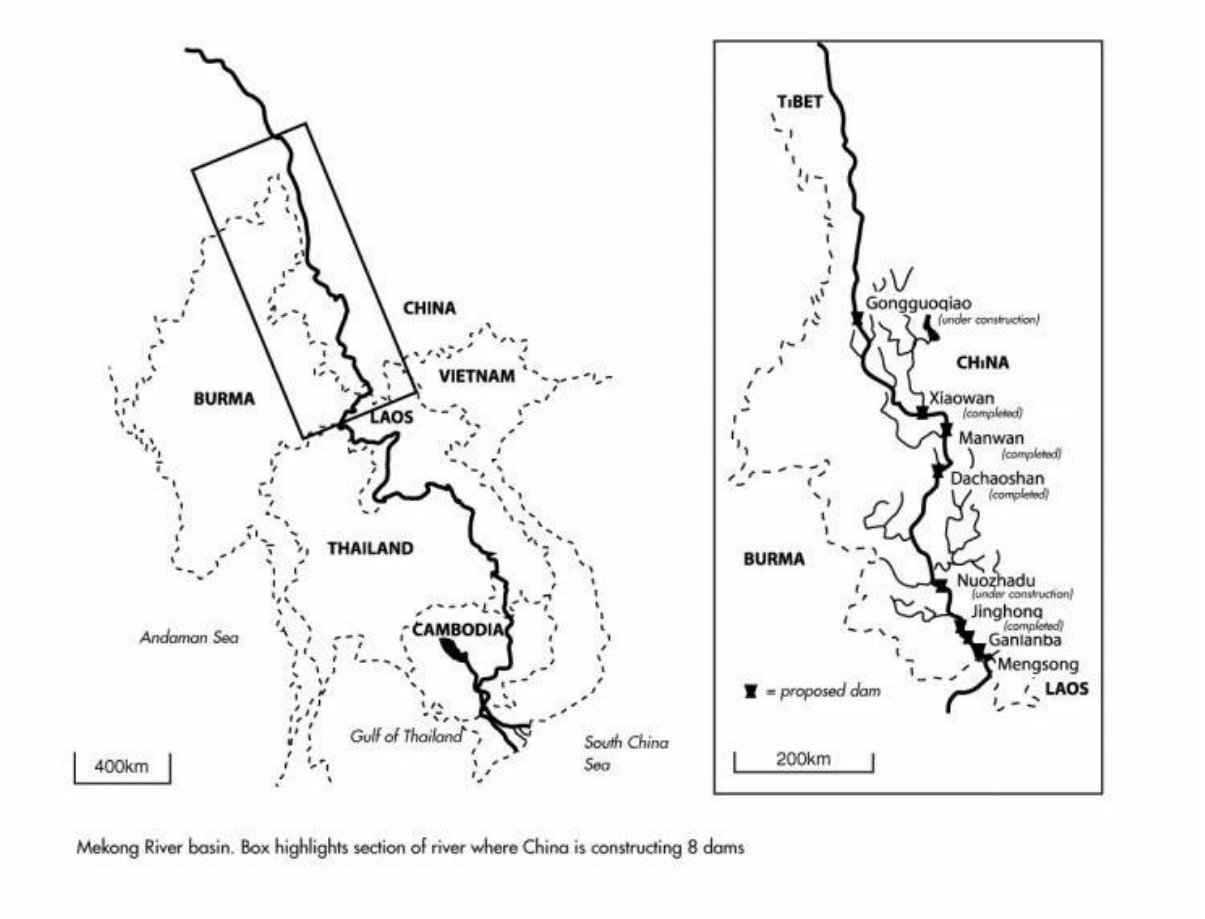

Figure 2-4 Map of Mekong River mainstream dams located in China (Source International Rivers, 2010).

Goh (2011) posits that China's development of the Lancang Jiang Cascade has political and ecological consequences for the downstream riparian states. Ecologically the dams, which are built in an earth quake zone, impound large volumes of water. It has been estimated that the Xiowan and Nuozhadu dam will take up to 10 years to fill holding back 50% of the water flow during this period. The filling of the Manwan Dam in 1993 prompted Thai authorities to bring forward complaints and demands to Beijing in order to reduce downstream impacts that occurred during the dry season.

Politically, the Lancang Jiang cascade allows China to control the quantity of water reaching the Lower Basin. This is extremely important for livelihoods, food security and for the economies of Laos, Cambodia, and Vietnam. Räsänen et al. (2012) found

that the Lancang Jiang cascade increased the dry season discharge by 34% to 155% and decreased the wet season discharge by 29% to 36% thereby altering river flood pulse timing and characteristics. The impact the current dams are having on the fisheries, hydrology in the Basin, and the delta are still not fully understood, but will undoubtedly be closely watched by lower riparian states over the coming years. No formal agreements exist between China and the lower riparian states on the management of the Basin, and China has stated that the Lancang Jiang cascade is a national issue refusing to discuss its development.

China's development of the Lancang Jiang provides useful examples of the hydro-political relations in the Basin. This development also highlights the lack of Basin planning and the importance of transboundary impacts. Further downstream, Mekong politics have resulted in Thailand's hydropower development coming to a standstill in the late 1990s.

2.4.2 Thailand

Thailand's domestic hydropower development took place primarily from 1960 to 1990 (Hirsch, 1995). In the 1960s and 1970s, avoiding much of the conflict of its neighbouring countries and with the support of the Mekong Committee, Thailand was able to construct a number of large hydropower dams across the country, the majority of which were located in the Mekong Basin (see Table 2-2.). Thailand's domestic hydropower ambitions; however, came to an end with the development of the Rasi Salai Dam and the Pak Mun Dam in 1994.

Table 2-2 Existing Hydropower dams in Thailand over 30 MW.

(Source: Pongtepupathum, 2012)

Name	Completion date	Installed capacity
Bhumibol Dam	1964	749 MW
Chulabhorn Dam	1972	40 MW
Lam Takhong Dam	1974	500 MW
The Pak Mun Dam	1994	136 MW
Rasi Salai Dam	1994	MW unknown
Queen Sirikit Dam	1974	500 MW
Sirindhorn Dam	1971	36 MW
Srinagarind Dam	1980	720 MW
Vajiralongkorn Dam	1984	300 M

The Rasi Sali and Pak Mun Dam were developed in the North-east of Thailand as part of the Kong-Chi-Mun Water Diversion Project. Their purpose was to supply hydroelectric power, irrigate land and reduce flooding in North-eastern Thailand (Molle and Floch, 2008b). Perhaps the most controversial of the Mekong Committee's projects, the Kong-Chi-Mun project was intended to install a series of over 20 dams and weirs designed to produce hydropower and irrigate an area of 796,800 ha across 15 provinces (ibid). The project included controversial plans to divert the Mekong River into the Chi and Mun rivers. This plans raised a number of concerns from downstream Cambodia and Vietnam. The project's aim was part of a larger Government plan to turn the dry and relatively poor Northeast Region of Thailand, green and productive (ibid).

The first two significant dams of the Kong-Chi-Mun project, the Rasi Sali, and Pak Mun Dams caused significant controversy. The dams failed to live up to a number of promises from the Thai government. They displaced thousands of people, destroyed the local fisheries and ruined a large portion of agricultural land due to salinization brought about by reservoir flooding from the dam (see Figure 2-5).

The environmental and social impact of the dams invoked massive civil society protests in the country and culminated in a 99 day protest in Bangkok by the 'Assembly of the Poor' that won major concessions including opening of the sluice gates of the Pak Mun Dam (Missingham, 2003). The Assembly of the Poor's success in protesting against the Kong-Chi-Mun project significantly contributed to domestic hydropower becoming politically unpopular in Thailand (ibid).

Expectation	**Real situation**
• Cost $135 m	• Cost $233 m
• Mitigation cost $11m	• Mitigation cost $32 m
• Dry Season HEP: 136 MW	• Dry season HEP 40 MW
• Irrigation 29,500 ha	• Irrigation None
• Displaced families 241 hhs	• Displaced families: 1700 hhs
• Reservoir fisheries 100kg/ha/yr	• Reservoir fisheries 10kg/ha/yr
• Natural fisheries: fish ladder, first for a Mekong dam	• Wild fish 169 of 265 species upstream of the dam disappeared

Figure 2-5 Expectation and Real Situation of the Pak Mun Dam.

Source WCD, 2000

As a consequence of this major civil opposition to dams Thailand's domestic hydropower development is currently off the political agenda. The Thai state and its private sector have looked to its neighbours, such as Laos, to provide sources of hydropower.

2.4.3 Laos

Laos began its hydropower development in the late 1960s when the Mekong Committee developed the 30 MW Nam Ngum Dam (Jacobs, 1995). Completed in 1971 and expanded in two phases, 1976 and 1996, to its current size of 155 MW, the Nam Ngum Dam inundated an area of 450 km² and displaced 800 families (ibid). The dam's impacts, which were exacerbated by wartime conflict, included no compensation for affected villagers and no clearing of the flooded area, which ultimately resulted in reduced fish yields in the reservoir with negative impacts on the food security of the Region's 80,000 inhabitants. The Nam Ngum was a contentious dam for Laos, but also provided an important revenue stream for the country. During much of the 1990s, the dam produced one-quarter of the country's foreign exchange income in electricity sales to Thailand (ibid).

As a consequence of regional conflict and lack of financing, only four dams over 30 MW were constructed in Laos between 1970 and 2003 (Haas, 2008). These include: The Nam Mang 3 (50 MW), the Nam Leuk (60 MW), Houay Ho (150 MW), and the Nam Theun Hinboun (210 MW). Until 2007, existing dams in Laos accounted for approximately 2% of its hydropower potential as estimated by the MRC (Haas, 2008).

Since 2007, hydropower development has been increasing rapidly in Laos, with at least 65 dams planned or under construction (See Table 2-3).

Table 2-3 Existing hydropower projects as well as new projects planned for domestic consumption and for export.

Source Department of Water Resources and Environment Administration (DWREA) (2008).

Project Name	Location (Province)	MW	(Planned) Year of Commercial Operation	Progress
Selabam		5	1960	Operational
Nam Dong		1	1960	Operational
Nam Ngum 1	Vientiane	155	1971	Operational
Se Xet 1	Saravane	45	1990	Operational
Nam Phao		1.6	1995	Operational
Nam Ko		1.5	1996	Operational
Theun- Hinboun	Khammouan	210	1998	Operational
Houay Ho		150	1999	Operational
Nam Leuk	Vientiane	60	2000	Operational
Nam Mang 3	Vientiane	40	2005	Operational
Se Xet 2	Saravane	76	2008	Operational
Nam Theun 2	Khammouan	1070	2009	Operational
Sekamane 3	Xekong	250	2010	Operational
Nam Ngum 2	Vientiane	615	2010	Operational
Nam Ngum 3	Vientiane	460	2013	Contract Agreement (CA) and Power Purchase Agreement (PPA) under negotiation, tariff concluded

Project Name	Location	MW	(Planned)	Progress
Nam Ngiep 1	Bolikhamxay	260	2013	PPA under negotiation, tariff concluded
Theun Hinboun Expansion	Bolikhamxay	350	2011	PPA under negotiation
Nam Theun 1	Bolikhamxay	520	2013	CA and PPA under negotiation, tariff concluded
Sepian- Xenamnoi	Attapeu and Champasak	390	2014	MoU 3.8.2006
Nam Mo	Xieng Khouang	105	2012	MoU 3.4.1997, PDA 18.11.1999, CA and PPA under negotiation
Nam Mang 1	Bolikhamxay	50	2012	MoU 8.2.2007
Nam Ngum 5	Vientiane and Xieng Kouang	120	2011	CA 10.4.2007
Nam Lik 2	Vientiane	100	2011	CA 30.10.2006
Nam Ou Cascade	Phongsaly	680		Under Construction
Sekong 4	Xekong	440		MoU 3.9.2006
Sekong 5	Xekong	250		MoU 22.12.2005
Sekaman 1	Attapeu	468		MoU 17.3.2006
Nam Kong 1	Attapeu	238		MoU 22.12.2005
Nam Kong 3	Attapeu	35		MoU 22.12.2005
Dak Emeule	Sekong	185		Research study
Nam Kane	Luang	40		Research study

Project Name	Location	MW	(Planned)	Progress
	Prabang			
Tat Saleng	Savannakhet	3.2		MoU 22.7.2005
Xepone	Savannakhet	70+30		MoU 10.11.2004
Houay Champi	Champasak	2		MoU 29.9.2005
Houay Yen	Champasak	2		MoU 26.5.2006
Nam Ham	Sayaboury	2.5		MoU 6.4.2005
Nam Hao	Huaphanh	5.1		MoU 18.8.2004
Houay Katam	Champasak	33		MoU 5.4.2006
Nam Tha 1	Oudomxay	263		
Nam Beng	Oudomxay	50		MoU 19.6.2006
Nam Ngum 4	Xieng	250		Research study
Nam Sane 3	Bolikhamxay	60		MoU 30.6.2006
Xe Katam	Champasak	61	2011	MoU 30.9.2004
Houay Lamphan Gnai	Champasak	75		Research study
Xe Kaman 4	Xekong	155		MoU 19.12.2006
Xe Kaman 2	Xekong	135		Research study
Nam Nguio	Xieng	20		MoU 12.10.2004
	Kouang			
Xe Kong 3	Xekong	150		Research study
Xedone 2	Salavanh	54		Research study
Xe Sou	Attapeu	95		Research study
Xe Neua	Kammuan	40		MoU 16.5.2006
Nam Sim	Houaphanh	8		MoU 14.2.2003
Xe Bang Nouane	Salavanh	80		MoU 28.8.2005
Nam Theun 4	Bolikhamxay	80		Research study
Nam Ngiep 2	Vientiane	155		MoU 16.11.2006
Nam Mouane	Bolikhamxay	137		Research study
Nam Feuang	Vientiane	60		MoU 4.3.2007

Project Name	Location	MW	(Planned)	Progress
Nam Bak 1	Vientiane	115		MoU 11.4.2007
Nam Bak 2	Vientiane	80		MoU 11.4.2007
Nam Ngum D	Vientiane	60		MoU 28.1.2008
Nam Lik 1	Vientiane	60		MoU 7.7.2006
Nam Long	Luangnamtha	2.5		MoU with province
Nam Khan 1	Luang	115		Research study
	Prabang			
Nam Khan 2 (EdL)	Luang	130		MoU 13.10.2006
	Prabang			
Nam Khan 3 (EdL)	Luang	95		MoU 13.10.2006
	Prabang			
Nam Seuang 1	Luang	41		MoU 4.5.2007
	Prabang			
Nam Seuang 2	Luang	134		MoU 4.5.2007
	Prabang			
Nam Pha	Luangnamtha	70		MoU 2.4.2007
Nam Phak		40		MoU 31.5.2007
Pak Lay (Mekong mainstream)	Xayabuly and Vientiane	1,320		MoU 11.6.2007
Nam Mung 1	Vientiane	60		MoU 8.2.2007
Don Sahong	Champasak	240		MoU 23.3.2006
Tha Kho	Phongsaly	35		Research study
Tat Somphamit	Champasak	56		Research study
Xayabury (Mekong	Sayaboury	1,260		MoU 4.5.2007
main stream)				
Luang Prabang	Luang	1,410		Research study
(Mekong main stream)	Prabang			

Project Name	Location	MW	(Planned)	Progress
Upstream Nam Emun	Sekong	23		
Midstream Nam Emun	Sekong	115		

As of 2012, Laos had 14 operational hydropower dams with combined installed capacity of approximately 2,500 MW (Vientiane Times, 2012c). All the existing dams in Laos are on tributaries of the Mekong, however, the Xayaburi Dam, the first mainstream dam on the lower Mekong, is currently under construction. Laos has signed MoUs to provide 7,000 MW of electricity after 2015 to Thailand, and 3,000 MW of electricity to Vietnam by 2020 (as well as a number of others to IPPs). China and Cambodia have also signalled their desire to purchase electricity from Laos. A detailed discussion of the key dams in Laos and the political ecology surrounding their development and operation will follow in the empirical chapters. Just downstream of Laos, Cambodia also has a large hydropower potential. Like Laos, Cambodia's hydropower remains relatively underdeveloped.

2.4.4 Cambodia

On account of the violence and conflict of the Khmer Rouge regime from the 1970s to the 1990s, Cambodia's hydropower had been relatively unexplored. A 2008 study supported by the MRC estimated the country's potential at approximately 10,000 MW with 50% deriving from Mekong mainstream development (Sovanna, 2010). Cambodia currently has four existing or nearly completed hydropower dams over 30 MW. The Kamchay (193 MW), Stung Atay (120 MW), the Lower Stung Russey (235 MW), and the Stung Tatay (246 MW), all of which are being developed by Chinese interests (Sovanna, 2010). There are plans for at least a dozen more large dams in Cambodia, primarily funded by Chinese and Vietnamese investors. The Stung Treng

Dam and the Sambor Dam are the two proposed mainstream dams under investigation.

Vietnam plays a dual position of both an upstream and downstream riparian in the Basin. Vietnam has developed its hydropower in much of the country, but extensive potential exists upstream of Cambodia in the highlands. As highlighted in the country profiles above, however, Vietnam has important agricultural assets in the Mekong Delta. These assets are under threat as they are downstream of other major planned dams in China, Thailand, Laos and Cambodia.

2.4.5 Vietnam

From 1959 to 1999, Vietnam had approximately 500 dams and weirs in the country for hydroelectric and irrigation purposes (Dao, 2011). From 2000, however, the Government implemented an intensive program of hydropower and irrigation development, raising the number of dams to 1967 by 2009 (Dao, 2010). By 2025 the Government is planning to develop total hydropower capacity to 20,178 MW (Vietnam Institute of Energy, 2006). Currently, hydropower accounts for about 40% of the country's total electricity production (VUSTA, 2007). Although dams in Vietnam are spread across the state primarily throughout the highlands, the ones of concern to the Mekong Basin are located in the southern part of the country known as the 3-S Basin.

The Sesan, Sre Pok and Sekong River basins forms the 3-S Basin. The 3 –S Basin, which covers an area of 78,650 km² is shared by, Cambodia 33%, Laos 29%, and Vietnam 38% (Wyatt and Baird, 2007). The Sesan and Sre Pok rivers originate in the Vietnamese highlands and join the Sekong river from Laos about 40 km before meeting the Mekong River. The 3-S Basin is the Mekong River's largest tributary contributing 20% of the total flow.

Vietnam currently has three hydropower dams (over 30 MW) in operation within the 3-S Basin. Yali Falls (720 MW), Se San 3 (260 MW) and Se San 3A (96 MW) (Dao, 2011). There are currently, five more dams under construction. The Yali Falls dam is perhaps the most controversial of the Vietnamese dams in the Mekong Basin. Completed in 2000, the Yali Falls dam is located in the Vietnamese central highlands just 80 km from the Cambodian border and is the second largest dam in Vietnam. Construction funding was provided by Russia and the Ukraine with the World Bank funding a transmission line. The 720 MW dam required the resettlement of over 8,500 people upstream in the catchment area with little to no compensation paid to affected villagers (Wyatt and Baird, 2007).

The Environmental Impact Assessment (EIA) only considered impacts 6 km downstream of the dam, which when completed significantly altered the hydrology of the river thereby impacting river communities and their livelihoods in Cambodia (Wyatt and Baird, 2007). In 2009, poorly planned water releases from the dam that included no notification to downstream villages resulted in the loss of life, livelihoods, and livestock affecting about 55,000 people downstream in Cambodia (Hirsch, 2010). Yali Fall's track record as a poorly planned and operated dam has attracted much criticism from NGOs (see. International Rivers 2000, Oxfam, 2013 etc.). Vietnam was pressured by the ADB to conduct a second EIA on the dam as a prerequisite for funding the Sesan 4 dam (360 MW). Even with completion of the second EIA, Vietnamese and Russian investors have decided to fund the project, essentially bypassing the ADB requirements (G3, 2011). The Sesan 4 is currently under construction.

At the time of writing there is a committee formed with the purpose of coordinating and informing future releases of water from the dam, but reports from a member of the committee state that it is "non-functional" (G4, 2012).

While hydropower development and decision making in the Basin is not as extensive as other major river basins, it has attracted a significant amount of research and numerous critiques. The next section briefly explores the literature surrounding hydropower development in relation to this research.

2.5 Brief Overview of Hydropower Development Literature

Extensive literature has examined natural resource development and decision-making (See Mitchell, 1998; Smith and McDonough, 2001; Cheng et al., 2003). The literature surrounding natural resource development often focuses on how to improve the equity and outcomes of the process. The literature emphasizes the importance of fairness and public participation as well as concepts of place and scale. By contrast there has been a very narrow focus on the issue from a social science or geographical perspective, and very little analysis of what drives and shapes the politics that enable hydropower development.

Allan (2005) identified five water management paradigms that have characterised a sequence of approaches to water resource development in neo-liberal political economies. These five paradigms are: pre-modern, industrial modernity, and three stages of reflexive modernity - including green, economic, and political and intuitional reflexive modernity (see figure 2-6). Allan (ibid) argues that during the industrial modernity paradigm, economies are inspired by priorities captured in the term *hydraulic mission*. In other words, they secure water and seek to control and exploit it as a resource. Although the global North has moved past its hydraulic mission phase and is well into the phase of reflexive modernity, typified by politics and institutional management-led approaches and environmental concerns, it can be argued that much of the global South is living its hydraulic mission.

Hydraulic missions are typically characterized by engineering-led, large-scale infrastructure projects such as dams. Phases of hydraulic missions spawn hydraulic bureaucracies, sometimes called 'hydro-cracies', which are often headed by influential decision makers (Molle, 2008). Such hydro-cracies are often a mix of private and state actors, including ministries/departments of irrigation, energy, water, politicians, land elites, development, state and private banks, and construction companies (ibid). Decision-making by these alliances is not transparent, nor are decisions made in open, public forums. Often these actors' processes are accused of lacking transparency. As will be discussed in Chapter 6, this outcome is especially the case in political systems and states that tightly control freedom of the press, grassroots movements and public participation, such as those states found in the Mekong Basin.

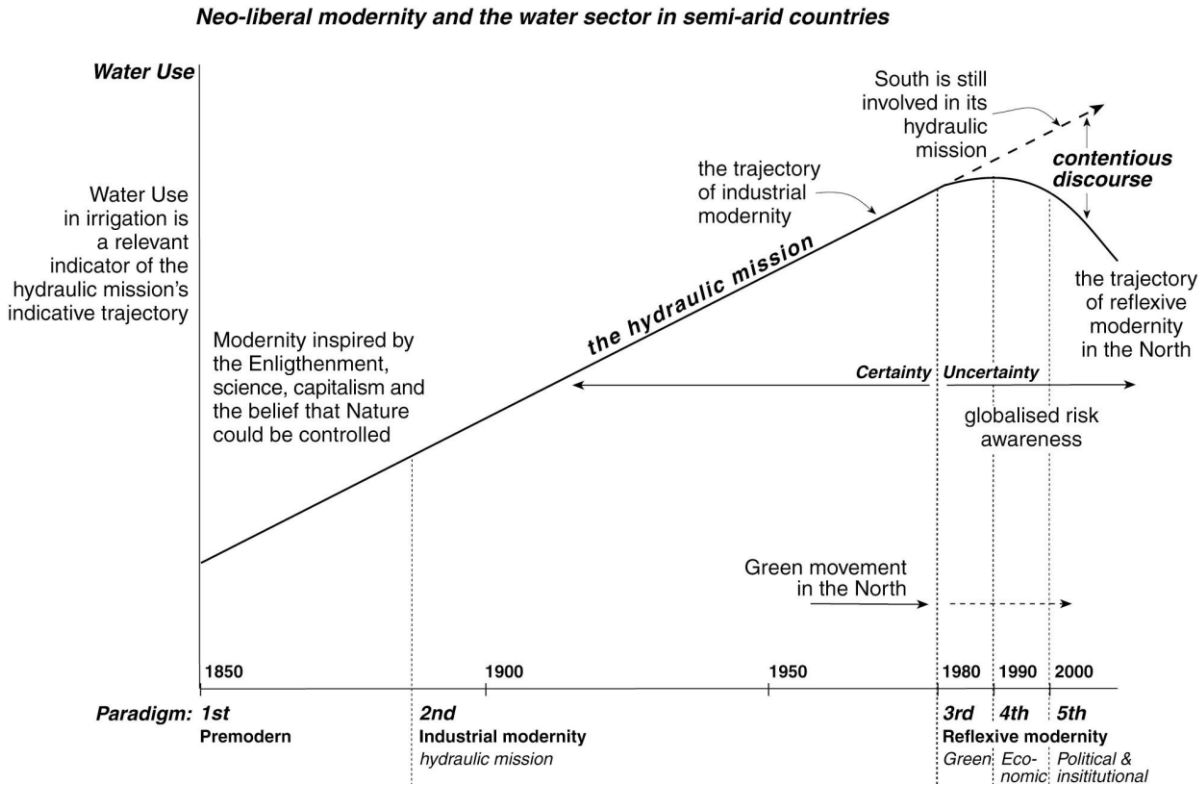

Figure 2-6 Five water management paradigms (Allan, 2003).

Over the past decade, focused primarily on the Mekong Basin, a number of researchers have used a geographical lens to gain deeper understandings of the hydropower development process. Koch's (2002) analysis of the politics of water and energy discusses the inherent complexity in decision-making surrounding large-scale projects such as dams. Koch (ibid) further emphasizes that the potential benefits and costs of hydropower create a political climate that influences the impacts and outcomes of development. Magee (2006) developed the idea of 'power sheds' as a way of understanding how politics and economics legitimize and delegitimize discourses and actors across different scales in hydropower development in Yunnan, China. Magee's (ibid) analysis of hydropower development in the upper Mekong Basin highlighted the actors, steps and overlap within the process and the "geographic imaginaries in formulating legitimizing, implementing, and in some cases contesting development strategies" (ibid:143). Magee identified that Chinese hydropower development firms were increasingly driven by market incentives as opposed to political directives. The increasingly influential role of the private sector in hydropower development in the Mekong Basin will be explored further in the Chapter 5 and 6. Magee (ibid) reaffirmed the difficulty of studying hydropower development processes due to their closed nature and lack of transparency.

While Hirsch published over 85 reports and papers on Mekong Basin development (1995; 2004; 2006; 2010 etc.). His research tends to focus on the MRC and the impacts of hydropower development. A very broad summary of Hirsch's almost two decades of research in the Mekong Basin would highlight that hydropower development in the Basin prioritizes economic growth and development goals over environmental and social concerns. Hirsch's work further highlights the increasing role of the private sector, competing versions of national interest and the weakness of the MRC in fulfilling its mandate.

Grumbine et al.'s (2012) broad analysis of the drivers of change and governance challenges in the Mekong Basin suggest that hydropower development and decision-

making has been influenced by demographics, human development, water and food security, economic integration, and climate change combined with new financing and inadequate governance. They conclude that the Region suffers from a lack of politically-aware, transboundary institutional structures for water governance and participatory development that incorporate the multiple uses of water.

Research into the meso-scale drivers and enablers of hydropower development in the Mekong Basin appears to be limited in its analysis by the closed nature of the process. The increasing role of the private sector, new finance, a lack of transparency, and poor governance and participation are re-emerging themes. This particular doctoral research aims to use a political ecology approach and the Impact Assessment process as a starting point. Ultimately, this research will push past the closed nature of the development process in order to gain a more detailed understanding of the meso-scale mechanisms that have driven and enabled hydropower development in Laos.

Within hydropower development, the Impact Assessment process is a key point of engagement for actors to defend and contest hydropower development. This outcome is partly a result of the legal requirement of impact assessments and the expectations of the process; it is a consistent, internationally-recognized, feature of large-scale developments around the globe. International, regional and, increasingly, local actors have expectations on outcomes of the process and the level of information they will disclose. There are some common elements of impact assessments carried out in developing economies where the state's ability to require and carry out impact assessments is often dependent on the support of international donors. Advocacy groups will suggest that poor hydropower development processes are illustrated by cases in which the Impact Assessment (IA) process is carried out after construction (or when it did not take place). For example, as will be discussed in Chapter 6, International Rivers has criticized the Houay Ho project for its lack of an IA process before construction started.

The IA process is important because it offers a public forum in which contested information can be discussed with reference to hydropower development. The IA process is designed to predict and mitigate the social and environmental impacts of hydropower. Where impacts cannot be mitigated, hydropower developers, such as governments and industry, will often downplay the IA process' predicted impacts and elevate the benefits of the development.

Of course, the science that informs the IA process, like all science, is subject to critique and it is often a point of contention between advocates and proponents of hydropower. The IA process is highly political. Moreover, the IA process is seen as one of the few opportunities for participation, whether encouraged or forced, in hydropower development. NGOs and advocacy groups are often excluded from the hydropower development process, especially in the politically closed states of the Mekong Basin. The IA process for hydropower projects is one of the few opportunities for civil society to engage in dialogue with decision-makers.

This study uses the hydropower Impact Assessment process as a means of exploring the cross-scalar linkages and mechanisms that drive and enable hydropower development in the Mekong Basin. IAs implementation across the meso-scale helps to provide links to mechanisms at regional scales and their impacts at local scales. The following section highlights the importance of impact assessments in the evaluation of Mekong Basin hydropower development.

2.6 EIAs and their Relevance to Hydropower in the Mekong

This study uses the Impact Assessment process as a point of departure for the examination of meso-scale drivers and enablers of hydropower development in the Mekong Basin. However, the study has not attempted to add to the existing literature

on impact assessments. The literature review below is included primarily to provide context and understanding for those reading this study.

IAs are understood to be recommendations or reports on development proposals or other major actions that may have social or environmental impacts. The primary purpose of IAs is to allow the relevant stakeholders, including Government officials, developers, funders and all concerned populations to understand and identify measures that could mitigate the negative potential environmental and social impacts of a proposed project in order to promote sustainable development (Salzman and Thompson, 2006).

The most widely practised form of Impact Assessment is the EIA. The EIA process originated in 1969 with the passing of the National Environmental Policy Act (NEPA) in the United States (Canter, 1996). EIAs emerged because of the growing concern of environmental impacts of development that began in the 1960s and further developed into the environmental movement of the 1980s (ibid). The first EIAs stated that "any action by federal Government agency likely to have some impact on human environment had first to be subjected to a balanced, interdisciplinary and publicly available assessment of these outcomes" (Goldman and Baum, 2000:544).

Since the development of EIAs in the United States after 1969, similar guidelines have spread across the globe. Currently, the EIA is a well-established practice for large development projects and is practised in more than 100 countries and by numerous international funding agencies (Cashmore et al., 2004). In 1989, in response to concerns about the impacts of worldwide development projects, the WB introduced an environmental assessment policy requiring an EIA to be undertaken for development projects funded by the WB (Alshuwaikhat, 2005). Much later, in 2002, the ADB formally recognized the need to incorporate environmental considerations into national and sub-national development planning (King et al., 2007).

Although EIAs are still widely practised around the world, the term 'Impact Assessment' has emerged to include a number of processes that focus on more than environmental concerns. These include social impact assessments, life cycle impact assessments, and Environmental and Social Impact Assessments (ESIA). Although many types and definitions of impact assessments exist, there are a number of common focal points. When identifying the objectives and goals of the project, Mitchell (1997:86) states that IAs should:

- Describe the environmental and social changes that might occur with or without the development.
- Identify actions to mitigate or eliminate negative impacts and highlight areas for monitoring, and
- Identify impacts that have a temporal dimension so that developments may be modified during the planning stages or changes may occur in the social or natural environment.

The focal points of IAs such as identifying and mitigating impacts are only one element of the process. There are a number of important elements that need to be considered during the implementation of IAs. Gibson (1993:16) has identified seven key principles to improve the design of impact assessments. These principles highlight the complexity involved in a detailed IA process:

1. An integrated approach: It is important to understand the costs and benefits of impacts it is important to look at them on both spatial and temporal scales. Impact analysis must take into account local, national, and global scales as well as short medium and long-term implications. The integrated approach further highlights a need to focus on social, cultural, and economic impacts as well as environmental.
2. All initiatives should include environmental, social, and economic considerations: This applies to public and private sector initiatives. Policies and programs as well as projects should be subject to IAs.

3. Impact Assessments should focus on identifying the best options – Options identified as `acceptable` often involve unacceptable environmental and social costs. It is important to identify options that mitigate impacts even at the cost of the project.
4. Impact Assessments should be based in law and be enforceable: The IA process can be a key determinate in a project's success and investors financial returns. Under this backdrop of money, the IA process becomes vulnerable to outside influences. Well-defined laws and strong enforcement mechanisms ensure the IA will stand up to potential attacks.
5. The assessment and decision-making process must be open and participative: An open and participatory process will encourage greater acceptance among stakeholders. Participatory processes further allow for scrutiny and a diversity of opinions to be considered.
6. After the approval process, monitoring must be conducted and terms and conditions must be enforceable: Without monitoring of the project the IA process becomes a hollow bureaucratic step with no value.
7. Efficient implementation is imperative: IAs that are overly time consuming or cumbersome will breed hostility. The process should be completed in organized and efficient manner so as to encourage confidence and compliance.

Gibson's principles for IAs set a high standard for the IA process. This high standard is important in IAs because they play such a key role in protecting livelihoods, cultures, and the biodiversity that is often not given due consideration during planning or implementation of projects.

The dominant form of IAs in the Mekong is EIA. Despite its name, which draws attention to environmental factors, EIA can be defined as a process that identifies the likely environmental and social impacts of development. According to Wathern (1988), for the EIA process to be effective and legitimate it must be completed before

the development begins and its findings should be conveyed to all stakeholders. The EIA process is designed to ensure that development projects are both sustainable and that they properly mitigate impacts they impose on people and the environment. As with all tools, there are many limitations to impact assessments.

EIAs have been widely criticized in the literature (Peets, 1999; Benson, 2003; Christensen P, Kørnøv L, Nielsen, 2005). Jay, Jones, Slinn and Wood's (2007) past and present review of EIAs states that the main critiques of EIAs are in relation to their inconsistent prioritization of factors and the inherent bias in the interpretation of impacts. EIA's are often considered as value laden as they are scientific. Furthermore, EIAs have been criticized for being too singularly-focused on ecological impacts to the relative neglect of social impacts. This is part of the reason for the emergence of other processes such as the social impact assessment.

Although the definition of EIA encompasses both environmental and social factors, literature and practice suggest that EIAs have shifted away from social impacts to primarily focus on measuring biophysical environmental impacts (Jay et al., 2006). According to Jay et al. (2006), a measure of an EIA's success can be determined by the extent to which environmental considerations are taken into account during decision-making and whether or not EIAs are resulting in restoring and maintaining environmental quality.

The success in the deployment of EIAs has been reviewed extensively in the literature in case studies and broad reviews and reports. Cashmore et al. (2004) meta-study of EIA effectiveness concluded that EIAs made only a moderate impact on project decisions. Wood's (2003) study of seven EIA systems from around the world found that EIAs were often conveniently circumvented by decision-makers. Wood (ibid) also found that political factors often marginalized the findings of EIAs.

In Laos IA are mandated by law and strong policies exist to regulate IAs. These include the Environmental Protection Law (1999), the Water and Water Resources Law (1996), the Electricity Law (1997), and the Forestry Law (1996). All of these laws and policies mandate EIAs for all development projects that will potentially impact the environment. The EIA Decree (2010) specifies the components and process of an EIA and requires all investment projects in Laos to undertake an EIA (Campbell, 2011).

Although IAs are framed on the basis of good practice and scientific findings, there is a set of additional, political and financial issues that often underpin their implementation. Beattie (1995) goes further by identifying three characteristics of all EIAs explaining that EIAs,

1. "…are not science,

2. …always contain unexamined and unexplained value assumptions", and

3. "…will always be political" (109).

Beattie (ibid) posits that by recognizing the political nature and bias within EIAs they will become stronger tools. Often, however, these characteristics are ignored by actors. This is because of the power that is vested within the IA process. The power implicit in IA deployments has attracted the attention of outside interests and made them susceptible to many outside forces. Foran et al. (2010) found that, within the Mekong, Environmental and Social Impact Assessments are affected by politics and issues of corruption. To varying levels, IAs are also subject to different standards of quality control. Furthermore, the current IA concession system in Lao has little transparency. Foran et al.'s (2010:18) study revealed that "hydropower concessions appear to be assigned to concessionaries on an ad hoc basis by Lao Government officials, rather than in a competitive or merit process …".

In the Mekong, as in many other places, there is an inherent bias in the EIA process. According to Karjalainen and Jarvikoski (2010), EIAs should provide an unbiased

analysis. In most cases, EIAs are written by a consultant hired by the lead developer with occasional input by the Government. This creates a serious potential source of bias and a conflict of interest as both the developer and the Government are paying the EIA consultant to write a report for a development in which they have vested interests. In the case of large hydropower developments, these vested interests can represent billions of dollars. Furthermore, the consultant that writes the EIA has often been hired by the project developer to manage the social and environmental impacts of the project. The EIA contracts themselves are also worth millions of dollars. Therefore, the consultant has multiple reasons to write EIAs that downplay the social and environmental costs of hydropower developments such as dams (O'Faircheaallaigh, 2010).

Other problems are also apparent. As the EIA consultant is working directly for the developer and indirectly for the Government, they both have an opportunity to review the EIA before, or if, it is made public. This opportunity allows them to affect the process, enabling them to apply pressure on the consultant to change the EIA to suit their needs.

As McCully (2001) states the consultant has a vested interest writing EIAs that appease their developers and ensure they will be hired for future work. The bias and conflicting interests that impact the EIA process have the potential to steer the EIA process, creating inaccuracies and possibly downplaying the social and environmental impacts of dams. Examples of how this bias has played out in the Mekong will be explored in the empirical chapters.

Over the past decade, there have been increasing calls from academics and NGOs in the Region for more holistic IAs that incorporate the social impacts of hydropower dam construction. The desire for a shift away from EIAs to a more inclusive assessment has come about because EIAs have not effectively mitigated the social or

environmental costs of hydropower dams. EIAs often do not take into account the number people displaced from dam projects or the livelihoods lost as a consequence of the changed hydrology of the river and Basin. In response to these criticisms, Environmental Social Impact Assessments (ESIA), which include socio-economic aspects in the assessment, are increasingly being lauded by the MRC and donors as a more comprehensive form of Impact Assessment. Despite this outside pressure for ESIAs, EIAs remain the dominate tool. As will be explored in Chapter 6, the political nature of the IA process and the degree to which mechanisms influence means that adjusting the type of IA used may improve influence its effectiveness.

Well documented critiques and analysis of EIA application and their value in global and local development have not led directly to an examination of their role in Mekong Basin hydropower development. Xikun and Min's (2008) *Transboundary Environmental Impact Assessment of Hydroelectric Resources Exploitation in Multi-Jurisdictional River: A Case Study of the Lancang-Mekong River* only emphasizes the need for transboundary EIAs and does not problematize EIAs in the Region. Campbell's (2011) analysis of EIAs in Laos and their implications for hydropower development is one of the first studies to challenge EIAs in Laos, linking them to issues with hydropower decision-making. Campbell concludes that the roots of EIAs are not suited to the Laos context. EIAs draw from western structures and influences that are not easily adapted to political and economic realities of developing countries. She further states that EIAs are often conducted as token procedures to fulfil basic funding requirements.

Initial research by Foran et al. into EIA processes in the Mekong seems to reflect the general findings of Wood (2003) and Cashmore (2004) and the more specific regional findings of Campbell (2011). EIA processes in the Mekong appear to be influenced by a number of political and economic factors that have marginalized their findings and influenced the Impact Assessment process. As stated previously, the aim of this study is not to contribute to the extensive literature surrounding impact assessments or

EIAs. Rather, it seeks to use IAs as a window to understand how hydropower development has been influenced in Laos by drivers and enablers at the meso-scale and who stands to gain and lose from its development.

2.7 Conclusion

The Mekong Basin is one of the world's most important river basins. It is home to millions of people and its water ecosystems enjoy a rich biodiversity. It also has a long history of dialogue regarding its water resources development, especially with respect to hydropower. Over the last 60 years the Basin has undergone significant transformations, both within its individual member states and across the Region. New actors have emerged, and through the politics, conflicts, and economics of hydropower development, some actors have benefited while others have not. As a result of the region's recent, violent conflicts and turmoil, there has been limited development of a Basin-wide hydraulic mission. During the past decade, however, there has been a surge in interest in investment and activity surrounding large-scale hydropower dams. Actors have emerged to occupy funding gaps and push development forward at a rapid pace.

This new era of dam building is occurring in a Basin where the riparian states are as politically and economically diverse as ever. The rapidly growing and rich economies of Thailand, China, and Vietnam are leading this surge. The key RBO, the MRC, appears to be struggling to keep pace. Within this rapid expansion of hydropower planning and development, the Impact Assessment process is one of the few windows through which to access the world of hydropower development. The IA process has also emerged as a point of contestation over hydropower. It is considered a key engagement topic for civil society and actors concerned about the social and environmental costs of the Basin's rapid hydropower expansion. However, the process is susceptible to bias and influence of those stakeholders that enjoy political

power. Resulting asymmetries are inherent in large-scale infrastructure development that occurs in non-transparent circumstances. It is through the window of the IA process that the following chapters will view the political and economic forces that drive and enable rapid hydropower development in Laos. The next chapter presents the theoretical framework for the study along with insights from geography's role in analysing the Mekong Basin hydropower debate.

3 Political Ecology and Geography's Role in Analysing the Mekong Basin Hydropower Debate

"Societies are much messier than our theories of them." (Mann, 1986:4).

3.1 Introduction

The chapter begins by introducing political ecology, the theoretical approach deployed in this study. Theory helps to make it possible to see the facts; it shapes and structures knowledge. This chapter examines the emergence of political ecology theory and shows how the theory treats narratives and scale, before analysing its application to water resource allocation. Specifically, the chapter will examine how the ecological elements of the allocation of resources is in itself a political process. This study focuses on the political ecology of hydropower in the Mekong Basin. The chapter concludes with a literature review of the contributions that geography has made to understanding the Mekong Basin hydropower debate.

Political ecology initially emerged in the field of geography and has since developed into an interdisciplinary and diverse approach that draws from evolving ideas in geography, anthropology, human ecology and environmental history. Political ecology is explicitly normative. It generally focuses on issues such as justice and human rights. It tends to be pro-poor and concerned with marginalized groups, and tends to promote environmental priorities. Critically, political ecology attempts to explain the "complex relations between Nature and Society through careful analysis of social forms of access and control over resources" (Watts and Peet, 2004:4). Political ecology draws from both politics and economic theory to understand who stands to win and who stands to lose from environmental change across different scales. The cross-scalar analysis focuses on linking the local to the global with respect to

competition and conflict over natural resources. It aims to explain the rationale of actors in political, social and environmental contexts.

Political ecology also analyses power. Power has many definitions. Dahl (1957) posits that power is the ability of one actor to force another actor to do what they would not have otherwise done. Keohane and Nye (2000:11) assert that power can 'also be conceived in terms of control over outcomes'. While political ecology can politicize environmental change, its critical analysis of scale and narratives also helps to illuminate the mechanisms that result in power asymmetries. The approach has been found to be very useful in this original study which analyses the meso-scale drivers and enablers of hydropower development in Laos and the Mekong Basin.

In the Mekong Basin, people and the environment are inextricably linked. Approximately 80% of the Basin's population lives in rural communities deriving their animal protein and livelihoods from wild fish and other very important water ecosystem services of the Basin. The politics and economics that shape hydropower development often have direct and immediate impacts on the environment, livelihoods and on the food security of millions of people. By drawing attention to the winners and losers in human induced environmental change processes in the Mekong Basin, political ecology provides a way to analyse critically the power relations at play in the particular economic, political and environmental contexts of the Basin. In hydropower development there are often significant environmental impacts and substantial opportunities for actors to increase their power, either monetarily or politically. By analysing the meso-scalar structures that enable and drive the distribution of power and impacts, political ecology can enable the identification of insights into the often poorly understood realm of the politics of hydropower development.

Ultimately, it is argued that the politics surrounding the definition of scales are fundamental to identifying the winners and losers in the current phase of hydropower intensification. The analysis aims to fill an existing gap in political ecology's analysis of scale. Instead of starting at a local scale and examining how international and national politics and economics impact local resources, this analysis begins at a meso-scale. The mechanisms between the state and global influences and between the state and local impacts have been examined.

3.2 Political Ecology as an Emerging Theory

Political Ecology first appeared in a book title by Bruce Russett *International Regions and the International System: A Study in Political Ecology* (1967). Russett used the term ecology to understand how systems worked together. He defined political ecology as "the relation of organisms or groups of organisms to their environment" and stated that "I have attempted to explore some of the relations between political systems and their social and physical environment." (p. vii). Russett's early use of the term did not encompass conservation or the natural environment. Over the years the definition of political ecology has taken on new meanings. Subsequent analysis of the term occurred through the 1960s and 70s (see Russett, 1967; Wolf, 1972; Miller, 1978; Cockburn and Ridgeway, 1979). However, our current understanding of the approach draws primarily from its application during the 1980s.

In the late 1980s the term political ecology was employed by scientists studying natural resource management as an approach to move beyond apolitical and neo-Malthusian explanations of environmental change (Watts and Peet 2004). Conventional wisdom often blamed farmers, or local practices and over population on the degradation of resources (see Hardin, 1968). Incorporating an approach that brought together politics and ecology allowed researchers to think "about questions of access and control over resources" and "how this was indispensable for

understanding both the forms and geography of environmental disturbance and degradation, and the prospects for green and sustainable alternatives." (Watts and Peet, 2004: 6).

Blaikie and Brookfield (1987) used a largely structural, empirically oriented, political ecological approach with 'chains of explanation' to identify that soil erosion in African farming villages was driven by broader political economic forces. Blaikie and Brookfield's approach to political ecology relies heavily on ecological perspectives. The chain of explanation offers a method to examine the structures, actors, relationships and asymmetries of power across different scales. According to Blaikie and Brookfield the chain of explanation

> "… starts with the land managers and their direct relations with the land (crop rotations, fuel wood use, stocking densities, capital investment and so on). The next link concerns their relations with each other, other land users, and groups in the wider society who affect them in any way, which in turn determines land management. The state and the world economy constitute the last links of the chain. Clearly then, explanations will be highly conjectural, although relying on theoretical bases drawn from natural and social science." (Blaikie and Brookfield, 1987: 27).

In Figure 3-1, below Blaikie and Brookfield's chain of explanation is applied to a hypothetical hydropower development in the Mekong Basin. Although the chain of explanation draws from conjecture, it offers a method of theorizing relationships between different scales from the ecosystem through to the larger political economy (Geheb and Mapedza, 2008).

The chain of explanation in political ecology	The chain of explanation in hydropower development	
Site	structure developed	• Forest cleared • Riparian settlement moved off-site • Physical dam structure constructed • Reservoir filled • Power lines established • New private and national income sources
Symptom	Economic symptoms at a specific place	• Livelihoods disrupted and/or destroyed • Fisheries collapse • Agricultural collapse • Non-tradable forest product collection collapse • Increased erosion/siltation • Entitlements altered
Practice	Specific management and operating rules at site	• Dam operation for maximisation • New communal natural resource management • New catchment management systems • Lack of cascade management systems • Poor regional hydroelectric coordination
Decision-making	Catchment users, resources, skills, assets, time horizon and technology	• New resource interests • New political relationships • High development intensities • New institutional mixes

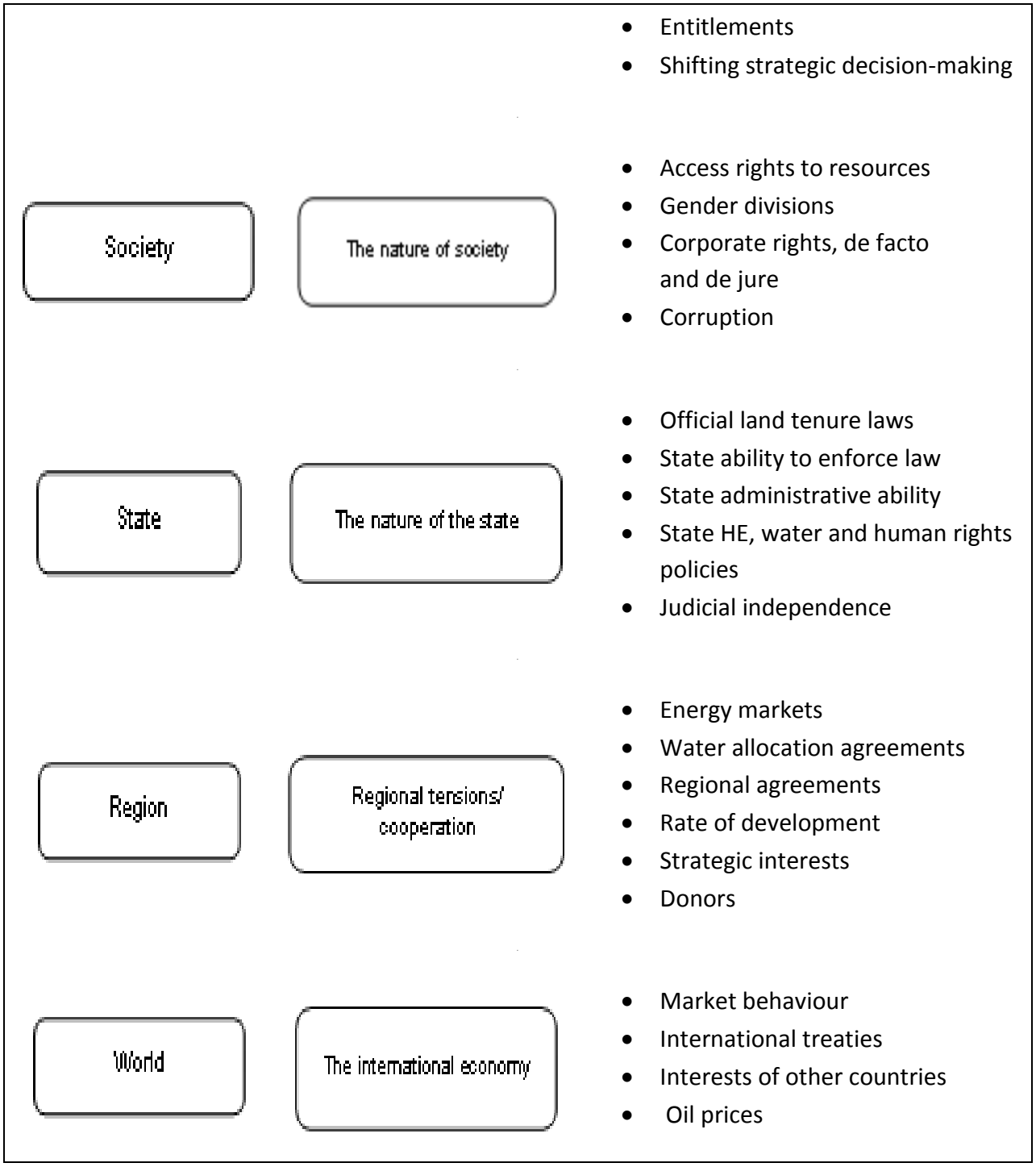

Figure 3-1 Chain of explanation applied to a hydropower site.

(Adapted from MPOWER, 2012 and Bossio et al., 2010).

By examining how the chain of explanation is adapted to hydropower development we are able to see the structures, actors and scale involved. For example, as the structure is developed at a local scale in activities such as forest clearing and resettlement the linkages to livelihoods are transparent. Furthermore, starting at the end of the chain we can trace back how oil prices and market behaviour eventually impact on local economies and ecosystems. These chains of explanation are useful in regions like the Mekong Basin, where livelihoods and the environment are deeply interlinked. When applied to hydropower development the chain of explanation helps to demonstrated how local level agents are influenced by maco-level scales. The chain of explanation has been criticized as being hierarchical (Rangan and Kull, 2009), but it offers a starting point for discussions about power and avenues for further research.

Another early political ecologist, Bassett (1988) used a political ecology approach to understand what was driving local conflicts in Northern Ghana between migrating Fulani pastoralists and sedentary Senufo agriculturalists. Bassett found little evidence to support the conventional wisdom that blamed conflict on resource scarcity and a tragedy of the commons. Using a political ecology approach to analyse political systems he was able to show that conflict was occurring because there were politics that favoured the Fulani's access to resources. This political favouritism granted the Fulani large areas of land access including that of the Senufo.

Stemming from their work in 1987 Blaikie and Brookfield provide one of the most cited definitions of political ecology as combining "the concerns of ecology and a broadly defined political economy." (1987:17). They reasoned that "together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself." (ibid:17). This definition explains political ecology as an interaction between society, ecology and politics.

Since its growth in popularity in the late 1980s political ecology has taken on many different strands and definitions (Zimmerer and Bassett, 2003). It has moved between structural and post-structural explanations and incorporated varying degrees of analysis on political institutions, environmental change, environmental narratives and political economy (Robbins 2004). Political ecology has drawn from cultural ecology, radical development geography and hazards/natural disasters research (Bryant, 1998).

Political ecology also has roots in Marxist theory such as relations of production theory and peasant studies (Bryant, 1988). O'Connor (1988:82) uses a Marxist analysis to state that the study of political and ecological concerns arises from the "second contradiction of capitalism". According to O'Connor (ibid), the first contradiction of capitalism is its mismanagement of labour and the second is its failure to consider a functioning environment a condition for its perpetuation. Some prominent political ecologists have suggested that part of political ecology's rise in popularity was because it offered an opportunity to rebrand unpopular Marxist theories in the post-cold war era (Watts, pers. comm., 2010).

Neo-Marxist political ecology perspectives have used the approach to engage in debates about materialism and nature in capitalist society. Watts (2000) defines political ecology as a tool "to understand the complex relations between nature and society through careful analysis of what one might call the forms of access and control over resources and their implications for environmental health and sustainable livelihoods" (ibid:257). Lipietz (2000) takes the definition further by stating that "Political ecology, like the Marxist-inspired workers' movement, is based on a critique—and thus an analysis, a theorized understanding— of the "the existing order of things". More specifically, Marx focused on a very precise sector of the real world: the humanity-nature relationship, and, even more precisely, relations among

people that pertain to nature (or what Marxists call the “productive forces”) (ibid: 70). In the Marxist interpretations of political ecology, capitalism is the primary cause of environmental degradation. I argue that, following the Marxist view of political ecology, in the Mekong it is capitalism’s growth in China, Thailand and Vietnam (the wealthier nations in the Basin) and the subsequent demand for electricity this growth feeds that is one of the elements that causes environmental degradation through hydropower development that ignores its social and environmental impacts. Using a Marxist analysis in political ecology allows for a critical engagement of development narratives.

In the 1990s, political ecology began to take on post-structural approaches (Escobar, 1996; Baghel and Nusser, 2010). Post-structuralism is concerned with explanations of discourse as they change material relations. These new approaches examined unequal power relations and how they manifest themselves in environmental change across different scales (Escobar, 1996: Baghel and Nusser, 2010). Escobar (1996) states that nature is socially constructed and carries multiple meanings. Using a historical materialist approach, Escobar posits that nature has two forms of capital; an extractive form and a postmodern form. An example of the extractive form is the selling of timber from forests while the postmodern form centres on the commodification of nature, such as using rainforests for pharmaceuticals. Escobar (1996:49) argues that ‘nature is reinvented as environment so that capital, not nature and culture may be sustained’. Using Escobar’s approach, hydropower development in the Mekong Basin appears to encompass both forms of capital. Dams can be destructive in their environmental impacts on water resources, but the generation of electricity from water can also offer postmodern forms of capital.

An increasing focus on narratives and discourses further accompanied the new approaches in political ecology. Robbins’ (2004) *Political Ecology A Critical Introduction* states that political ecology is both a hatchet and seed. In its approach as a hatchet, political ecology deconstructs myths, narratives and discourses linked to

the control of natural resources. In the Mekong, this hatchet approach is useful for analysing the development narratives from powerful actors that state hydropower brings benefits to the whole Region and those from NGOs that emphasize the 'pristine' environment. The seed is political ecology's attempt to develop new knowledge that will influence policy and natural resource management to be more equitable. The seed represents the goals of this study.

Peet and Watt's *Liberation Ecologies* (2004) links political and social movements that resist environmental change to their linkages to state and international political economies. These liberation ecologies highlight the defence of and the struggle over land and rights against powerful actors from the governments or the private sector. Peet and Watts (2004:10) state that 'political ecology opened the possibility of a serious discussion of how Nature and environmental problems were represented and how discursive formations shaped policy and practice'. Political ecology began to examine how actors use social constructs of environmental problems to legitimize their positions. As Bryant (1998:87) states 'conflicts are…as much struggles over meaning as they are battles over material practices.' This strand of inquiry is especially important in the Mekong Basin. In terms of hydropower development in the Mekong, actors socially construct the impacts and benefits of hydropower across different scales and use these constructions as an important justification for their decisions. The struggles of social and political grassroots movements against environmental change - or in the case of Laos, their lack of existence - help to highlight who stands to win and lose from environmental change and why. Using a political ecological analysis at the meso-scale helps to understand the political struggles over participation in meaning-making and decision-making processes.

Forsyth (2003) uses a critical political ecology approach that understands the social and political influence on science as the starting point in understanding environmental change. Although all political ecology should be considered critical, Forsyth stresses that environmental knowledge and facts are constructed as part of

political and economic debate. Critical political ecology considerations are important in the Mekong Basin hydropower debate. Kakonen and Hirsch (2010) point out that politics often define what and how the Mekong River Commission researches and evaluates water governance in the Basin. Impact assessments that downplay the potential impacts of dams and NGO documents that portray the impacts as 'enormous' also speak to a political ecology understanding of narratives and the influence of politics on science.

Until 2000, much of political ecology's focus was in the developing world. Bryant (1998:89) states that political ecology 'seeks primarily to understand the political dynamics surrounding material and discursive struggles over the environment in the Third World.' While Bryant and Bailey's (1997) edited volume on *Third World Political Ecology* is useful in highlighting the role of the state and its relationship with development agencies, the value of creating a distinction between First and Third World political ecologies is put into question (Walker 2003). Furthermore, Bryant and Bailey's (1997) text emphasizes the role of politics in shaping ecology in the Third World, but offers little in the way of specific discussion of what defines ecology. In *Political Ecology: Where is the ecology?* (2005), Walker's review of the political ecology literature demonstrates that although some political ecologists engage with politics more than ecology, they are still concerned with ecology as an important aspect of their research. These concerns of ecology "become primarily questions of power, struggle and representation..." (2005:78). As outlined above, Peet and Watts (2004), state that political ecology defines and understands the term ecology through the lens of politics and as a result it introduces different perspectives than those deployed by natural scientists. Political ecology's treatment of the term ecology has been adopted by other groups seeking to incorporate ecological concerns into their arguments.

Although political ecology has primarily focused on the global South, its application in the developed world context has continued to expand since the late 1990s. Atkinson

attempted to link political ecology with social movements in the United States by stating: “Political Ecology is both a set of theoretical propositions and ideas on the one hand and on the other a social movement referred to as the ‘ecology movement’ or, latterly, the Green movement” (1991:18). Robbins and Sharp (2003) take the application of political ecology analysis to the heart of America in analysing the moral economy of the American lawn. Bakker (2000) uses a political ecology approach to analyse drought in England and later in 2003 uses the approach to analyse the privatisation of water in the United States, England and Wales. More recent work by Ubokudom and Khubchandani (2010) uses a political ecology approach to analyse health care in the United States while Horowitz (2012) employed the approach to look at grassroots movements protesting against industry in the global North.

To illustrate political ecology’s usefulness in global issues, Peet et al. (2011) have produced an edited volume entitled Global Political Ecology. This book casts a political ecological lens across issues such as over-fishing, climate change and waste. The authors develop a post-structural view of political ecology to examine how knowledge is produced and legitimized in environmental governance. By examining climate change through a political ecological lens they draw out its links to capitalism, expert knowledge, as well as to common discourses and narratives.

3.3 Political Ecology on Narratives

In the Mekong, narratives are often employed by politicians, industry, or NGOs to frame problems and orient actions. However, as Roe (1991) states, they can also be employed to justify interventions and marginalize or blame actors for environmental degradation. For example, Neo-Malthusian arguments have often been used by policy makers to blame indigenous people for land degradation (For examples see. McCann, 1999).

Cronon states that narratives are particularly powerful in environmental history because they ascribe order and agency to human induced environmental change (Cronon 1995). Narratives are often grasped by actors to further their agendas. Actors can frame solutions within persuasive narratives and promote narratives that are beneficial to their agendas (Leach and Mearns, 1996). Hardin's (1968) tragedy of the commons narrative has often been used by policy makers in S.E. Asia, and around the world, to remove local people from forested areas and place those areas under state control. Extensive evidence, however, demonstrates that common, private and state resource management options are all viable options and often politics and economics are the real drivers of resource degradation (Feeny et al., 1990). Roe (1991) states that, like Hardin's narrative, other popular narratives persist because they buttress and endorse decision-making, thereby lending authority to actions and policies.

Narratives surrounding electricity scarcity, an abundance of hydropower potential, and poverty alleviation are all prevalent in the Mekong Basin. These narratives are reinforced by constructed and contested knowledge around the benefits and costs of dams. In the Mekong Basin hydropower debate, narratives have been employed by various actors as a disguise for their agendas and to legitimise their activities. For example, as will be discussed in Chapter 5 and 7, states developing hydropower often talk of benefits such as flood control and income. On the other hand, International Non-governmental Organisations (INGOs) in the Region often talk of loss of food security and livelihoods. Political ecology's focus on narratives has critically explored the multiple meanings of the environment and development (Watts and Peet 2004).

By understanding how power influences narratives at the meso-scale in Laos' hydropower development we can begin to understand the drivers and enablers of this development.

Narratives surrounding hydropower in the Mekong Basin often emerge during the Impact Assessment process as this is a key point of engagement in hydropower development. Chapter 5 and 7 will explore some of the more pervasive narratives employed by various actors concerned with hydropower development in the Basin.

Narratives are also often framed at particular geographic scales. In the Mekong, these geographic scales can emerge as common scalar referents such as local, provincial and basin, or more political and contested ones such as the Greater Mekong Sub-region or the Mekong Delta. Political ecology's analysis of scale is important in understanding narratives in that the scale at which narratives are employed is often constructed and intertwined with power relations as much as the narratives themselves.

3.4 Political Ecology on Scale

Understanding environment and natural resource exploitation and management between different geographical scales, that is local, state, regional - and how scalar constructs interlink between structures and systems is crucial in analysing hydropower development processes in the Mekong Basin. For the purpose of this study, scale can be understood in three different contexts. Firstly, as a physical measure of space; secondly as a space in which knowledge and power exist and change; and finally as a social construct mobilized by actors to lend credence to their agendas (Molle, 2007).

Geographers have extensively analysed the politics of scale. The politics of scale can be understood as the processes within, and the emergence of, scalar constructs (Castells, 1996; Smith, 1984; Swyngedouw, 2001). Gandy (2002) in his examination of New York City (NYC) analysed how political economic processes shaped the 'nature' of the city. Political ecology examines the production and operation of the politics of

natural resource allocation at regional and national scales. In Gandy's examination of NYC he discusses how the scale of the city is constructed and how Nature has been constructed within this scale. Escobar (1996) further states that capital redefined Nature as an environment. This new definition ultimately dismisses ideas of nature and culture, so that the power of those who control capital can maintain their status. Lefebvre (1990) highlights how geographical spaces and their scalar concepts should be considered as socially produced. Much of the geographic literature on scale and space link them to the survival of capitalism and its expansionist tendencies. Geographic literature provides a foundation on which political ecology theory and its analytical approach has advanced the understanding of scale.

Zimmerman and Bassett (2003) state that political ecology is concerned with how geographic scale is constructed and how actors use it to legitimize or delegitimize environmental change. Political ecology analysis argues that environmental and social change is the result of how the processes and mechanisms between local, national and international levels interact (Marston and Smith, 2001; Rangan and Kull, 2009). Actors and actions at one scale may have impact on activities at another. As Bryant and Bailey (1997:33) state 'different actors contribute to, are affected by, or seek to resolve, environmental problems at different scales'. Political ecology can help to illuminate how actors at one scale can construct and disseminate a version of scale that advances their agendas. Political ecology can help to highlight how powerful actors define the scale of environmental change and use these definitions to legitimize their actions. In the Mekong Basin hydropower debate, hydropower developers and states often claim that the scalar benefits of hydropower, which are often measured at meso or national scales, are larger than the costs, which are often measured at local scales. For example, Sneddon and Fox (2006) contend that the World Bank scaled support for the Pak Mun Dam at a national scale. By constructing the benefits of the Pak Mun Dam around an economic development narrative (i.e. that the dam will benefit the country as a whole) the WB de-emphasized the local costs of the dam on fisheries and livelihoods.

Rangan and Kull's article, *What makes ecology 'political'?: rethinking 'scale' in political ecology* (2009), highlights the different ways scale is constructed to explain ecological and social change. A political ecology analysis shows that scale is socially constructed and that the politics of scale are defined through institutions, events, technologies, politics and measurements. In the Mekong Basin, the benefits and costs of hydropower development are dependent on definitions of scale. I argue that the politics surrounding the definition of scales are fundamental to identifying the winners and losers in the current phase of hydropower intensification. A political ecology analysis of how scales interact can be used to locate environmental change in political economic systems and state relations (Paulson et al., 2005). For example, in Chapter 5 I show how in Mekong hydropower development, environmental change is often debated at a meso-scale between states and unequally balanced against economic growth.

Political ecology has a long tradition of detailed local scale case studies that link to national scale politics and economics. This traditional political ecology approach links detailed local level surveys to global agents. For example, political ecology uses the chain of explanation to examine the structures between scales often concluding that national or international politics and economics influence local environmental change. The analysis in Chapter 6 shows that political and economic mechanisms and systems within Laos are important drivers and enablers of hydropower development that negatively impacts local resources. These mechanisms are influenced by meso-scale narratives and political, economic and historical factors that are discussed in Chapter 5.

The Impact Assessment (IA) process is also used as a tool in meso-scale analysis. IAs fit within the meso-scale in the Mekong Basin because they are important for both the political economic systems and the state organizations that are investing in hydropower development. In Chapter 6, I show that the IA process is influenced by

both international and state actors. The outcomes of this process have direct implications on the socio-economic impacts of hydropower development.

It is contended that by starting at a meso-scale we can analyse how broader regional forces impact the environment of the Region. While also focusing on illustrating the mechanisms that allow these forces to operate (see figure 3-2), the Impact Assessment process is used as a pathway to understand these mechanisms and how they enable local, state and regional scales to connect. These mechanisms, or drivers and enablers, are essential factors in determining what is driving the hydropower development processes in the Basin.

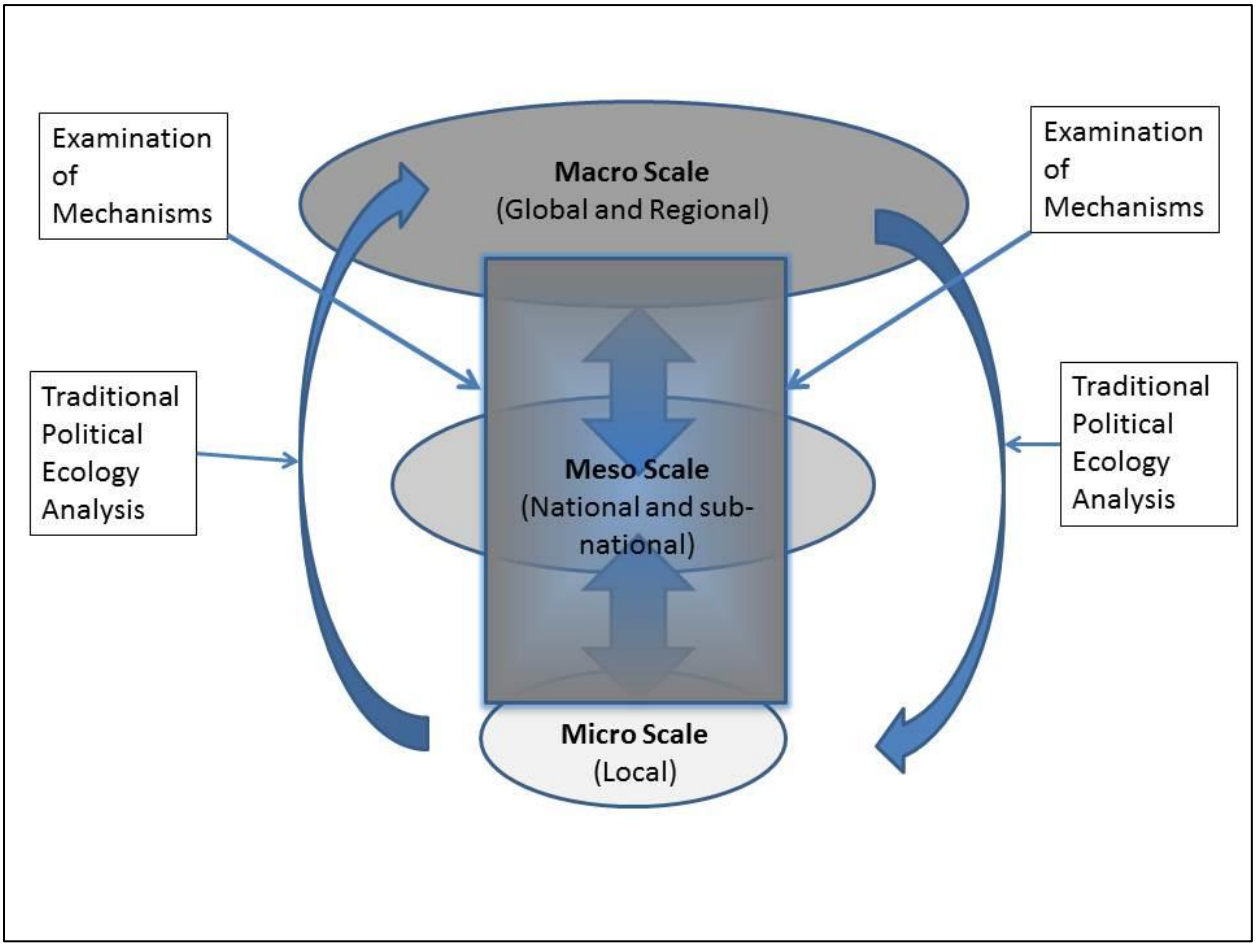

Figure 3-2 Analysing mechanisms between scales in hydropower development

In Figure 3-2, the traditional analysis of scales within political ecology is highlighted by the curved arrows. Political ecology traditionally examines the links between local scales and the environment and macro or international scale politics and economics. This research aims to illuminate the mechanisms that drive and enable the political and economic forces between the scales (illustrated by the arrows in the opaque box in the middle of the above diagram).

Perhaps one of the reasons why this type of research is not well covered in political ecology is due to the difficulty in researching the meso-scale within a political ecology approach. Ultimately, we face a challenge in collecting data that will elucidate the complex, confidential and/or contentious mechanisms that drive meso-scale decisions. Meso-scale data, such as the drivers and enablers of hydropower development, is often linked with individual or institutional power. These data may include sensitive company or Government information or it may point to issues of corruption or transparency. To illuminate these mechanisms and uncover the drivers and enablers of hydropower development in the Basin this research uses the Impact Assessment (IA) process as a starting point for analysis. The analysis will be discussed in the methodology section of the paper. The research that underpins this analysis benefited from extensive networks in the Region built up over the last 7 years. For example, while working in the Region in 2009 I began to engage contacts with consultants and Government officials who would prove to be extremely useful sources of data. During my fieldwork in 2011 and 2012, I was able to strengthen these relationships and develop a level of trust that enabled rich interviews and access to important data.

Watts' (2001; 2004) work on the political ecology of oil extraction in Nigeria is a notable example of using political ecology to examine the mechanisms that drive and enable environmental change from a meso-scale. In examining the agendas, actors and mechanisms that drive and enable environmental and social change, Watts uses a meso-scale analysis to capture the complexity and nuanced story of Nigeria's oil

extraction. Watts' analysis demonstrates how actors in the Region both win and lose from environmental change. Watts' political ecology analysis of Nigeria's oil extraction has some similarities to Laos conditions. Both countries are highly dependent on natural resources (oil for Nigeria and hydropower for Laos) for income. Both states have had on-going low levels of transparency and participation in political systems, natural resource dependent groups and extensive poverty. And both states have been the focus of extensive international interest from organisations such as the World Bank and the United Nations.

By examining the mechanisms embedded within the meso-scale of oil extraction, Watts was able to demonstrate the sophisticated linkages and mechanisms that drive and enable change across international, state and local scales. In this way, Watts' insights have helped to illustrate the ways in which actors from across the Basin construct narratives across scales to support their competing agendas. This study, like Watts', shows that a variety of actors, including The World Bank, INGOs and states construct narratives surrounding hydropower to legitimize and disguise their activities within the Basin. It is also shows how neo-liberal agendas that encourage private sector investment combine with mechanisms such as lack of transparency and weak accountability to allow actors to construct hydropower that avoids including its social and environmental costs.

Political ecology's contribution to geographical understanding of scale is ongoing and continues to contribute to our understanding of water issues. In general, political ecology is not used to interpret or analyse water resources to the same degree as it is used for general natural resource analysis (such as land degradation and forest resources). However, political ecology can effectively examine water issues because water governance is at the same time also deeply political, economic, environmental and social.

3.5 Towards a Political Ecology of Water Resources

Early uses of political ecology (i.e. before the late 1990s) did not address water resources issues. In fact, Bryant and Bailey stated in 1997 that political ecologists have been 'relatively negligent' in analysing water, hydropolitics and 'how control over water is linked to unequal power relations' (1997:193). It was not until the late 1990s that political ecology began to analyse water issues with useful results (Swyngedouw, 1997; Bakker, 1999; Sneddon and Fox, 2006).

The political nature of water issues means that political ecology can be useful in analysing issues related to the use, distribution and conflict over water. As Bakker states, political ecology offers a more nuanced perspective than political economy on water issues because the approach "acknowledges the materiality of nature" thereby, "re-theorizing resource regulation; and interrogating the role of the state from a different perspective than that of much political economy." (Bakker, 2010; 52). In other words, political ecology critically examines the process of resource commodification and regulation. Bakker further states that by "acknowledging the coproduction of socio-economic and environmental change" political ecology helps to "generate new insights into contested and complex periods of transition" in water governance.

The utility of the approach becomes apparent when political ecology is applied to Mekong Basin water governance. First, in the Mekong Basin, a complex period of transition between modes of regulation has emerged. The transition has involved a shift from *state and development bank* to *private sector hydropower development*. Bakker states that "The quotidian practices of regulation develop within and reinforce but also sometimes contradict broader macroeconomic patterns of resource regulation." (2010:53). As the actors and regulators transition to the private sector mode in the Mekong Basin, new political and economic mechanisms have emerged

while others have gained influence or disappear. The political ecology approach is useful in analysing the political and economic forces that drive and enable these transitions. For example, the World Bank and the Asian Development Bank, in line with neo-liberal trends, encouraged private sector investment in the Basin. This private sector investment brought with it new requirements for confidentiality which has resulted in less transparency and in some cases have increased instances of corruption.

In *Modernity and Hybridity: Nature, Regeneracionismo*, and *The Production of the Spanish Waterscape,* Swyngedouw (1999) uses a political ecology approach to demonstrate how nature and society are meshed together. Many people living in the Mekong Basin depend daily on the fish they catch and the non-tradable forest products (NTFP) from the Basin. For example, 80% of the animal protein in the Cambodian diet is from wild fish resources (Van Acker, 2003). For many people in the Mekong nature and society could be considered as inseparable. In order to understand and analyse water governance in the Mekong it is necessary to examine both political and ecological factors.

Using a political ecology approach to understand environmental change in Bangladesh, Bradnock and Saunders (2000:67), usefully point out that “politics itself is not self-explanatory or uncontested.” Environmental change occurs within interlinked combinations of environmental and human systems (ibid). In Laos, arguably more than many developed countries, environmental and humans systems are deeply intertwined and each influence environmental change in significant ways. This study uses a political ecology approach that focuses on political, social and economic forces to understand the drivers and enablers of hydropower development because hydropower is developed to serve political and economic systems.

Second, by including the principles of both social and environmental justice, political ecology can offer a more in-depth understanding of the winners and losers in the current hydropower intensification in the Mekong. As Bakker (2010) states, this is because political ecology "begins from the assumption that socio-economic and environmental change are co-produced, but also broadens the set of actors-non-humans, as well as humans-who are considered both as objects of study, and also as holders of legitimate claims to equitable treatment." (2010:54). An effective analysis of the processes of evaluation and implementation in Laos hydropower projects requires consideration of hydropower's impacts and advantages on the regional and international actors and the environment.

Finally, political ecology may provide an additional and complementary analytical lens when it comes to International Relations. In the Mekong Basin, the private power producer model has changed the role and relationships between various states, the nature of the market and citizen relations, and the allocation and use of water and other natural resources. By acknowledging the role of the state in resource management, a political ecology approach helps to understand both state and private sector motivations, shifts in responsibilities and the nature of the evolving relationships (Bakker, 2010). In this study it will be shown that the changed market dynamics that accompanied private sector investment altered the ways in which hydropower was built and its potential social and environmental impacts. These new models also further empowered elite actors while disempowering local people.

A Sneddon and Fox (2006) paper on the critical hydropolitics of the Mekong is a very useful example of the application of the political ecology at the Basin scale. Sneddon and Fox (2006) demonstrate how in many areas of the world and particularly in the Mekong, water is a resource that is managed by elites. They demonstrate that political ecology helps to identify how actors represent rivers and how institutions and systems legitimize these representations. They propose that such contextual analysis has helped to illuminate the dark corners in previous transboundary

hydropolitic studies. They remind us that cooperation in river basins can lead to exploitation of natural resources and the people who depend on them. In the case of the Mekong, the lack of mainstream dams is partially due to war and poor cooperation among the Basin riparian states. The current shift to the independent power producer model and the influx of private sector investment has reduced the need for cooperation in the hydropower development of the Basin and been a driver in the current intensification.

The contribution of political ecology to understanding environmental change discourses, representations of scale, power, politics and economics within a frame of environmental change are extensive. However, as with any approach it is not without criticism.

3.6 Critiques of Political Ecology

While the contribution of political ecology to understanding environmental change discourses, representations of scale, power, politics and economics within a frame of environmental change are extensive and generally positive, its broad-based nature can also create challenges and invite criticism. Despite its widespread adoption over the past 30 years there have been some significant critics (Vadya and Walters, 1999; Walker, 2006). One specific area of criticism emerges as researchers struggle to find a consistent definition of political ecology (Mustafa pers. comm., 2010). Robbins (2006) in his book *Political Ecology A Critical Introduction*, provides ten definitions, none of which are very concise. But while political ecology is criticized for being difficult to define, its lack of defined boundaries can be seen as one of its strengths.

The fact that political ecology allows a broad conversation about environmental and political change means that it is expansive enough to incorporate new ideas. Political ecology's broad approach is useful for this study because it allows a focus on political

and economic forces driving and enabling change on both people and the environment. Attempting to find a fixed definition of political ecology is a territorial game that will weaken its applicability.

Vayda and Walters (1999) offer the most citied critique of political ecology. They state that political ecology is "biased, normative and question begging" (1999:67). They further criticize political ecology, primarily the work of Watts, as over-analysing politics and neglecting the environment. Vayda and Walters (1999) suggest that researchers should observe environmental change and then determine the causes instead of assuming they are political.

Peet and Watts (2004) address these criticisms by stating that political ecology deploys a broad toolkit to explain the world. Political ecology "examines relations between events structures and mechanism …" (2004:18). Peet and Watts (2004) further state that political ecology analyses beyond what Vayda and Walters understand as the meaning of the term environment. Political ecology has allowed researchers to understand the environment in a number of "multiform representations" (Peet and Watts, 2004:19). Multiform representational understanding suggests that people view the environment in an inherently political way. Acknowledging this analytical framework or perspective is fundamental to explaining the relationships surrounding the environment. For example, in Laos the environment provides livelihoods and food security. Despite these essential environmental services, actors from the Basin states, including Government officials and industry, view the environment and water as the key to state economic growth and power. This view defines their relationship to the environment and how they manage it.

Furthermore, Vayda and Walters (1999) claim that political ecology should observe environmental change and then determine the causes instead of assuming they are political is not valid in examining hydropower development. Hydropower

development is proven to create immediate and long-term environmental change. The political ecology approach recognises that the environmental change from Hydropower is due to political and economic forces.

A final critique of political ecology is its limited application in terms of geographical scale and the politics of scale. As Paulson and Gezon note in their edited volume, *Political ecology across spaces, scales, and social groups* (2005), identifying an appropriate scale to begin analysis can be difficult in political ecology. In 2005, Brown and Purcell, critiquing literature from the 1990s and early 2000s, stated that political ecology often fails to engage with the geographic politics of scale. They state that political ecology often falls into a 'scalar trap' by describing local scale policies, institutions and initiatives as being more environmentally sustainable. Previous political ecology literature has at times fallen into this scalar trap; however, more recent work in the field has critically analysed local scalar constructs, treating scale as a dynamic and complex concept (Zimmerman, 2003; Neumann, 2009; North, 2010).

This discourse has confirmed the argument that political ecology can be subordinate to political economy. In the Mekong it is evident that some economies have achieved a level of economic development that enables them to re-appraise their approach to mis-managing water resources. A feature of this study includes a comparison of the social, economic and political capacities of the riparians and the options available to them as a consequence. The Mekong Basin is rich in diverse economies enjoying different endowments and with a different suite of evolved social, economic and political capital.

In terms of geographical scale, the majority of political ecology research that involves case studies has focused on issues at the local scale (Blaikie and Brookfield, 1987; Hecht and Cockburn, 1989; Zimmerer, 2004). While Sneddon and Fox's (2006) application of political ecology to the Mekong Basin provides a strong example of

how the approach of political ecology can be applied to larger scales, there is currently no research that shows why political ecology cannot be used on an international scale. Despite these gaps in research, the question remains - why has political ecology been primarily used at local scales?

One explanation can be found in the challenges created by historical inertia. As demonstrated above, a strong influence on political ecology's early development was Marxism. Marxist-inspired research in the political ecological tradition has conventionally been more attentive to structural explanations in which states are seen as an institutional conduit for other structures to emerge. In the Mekong Basin hydropower debate, the political economy of Laos is not immune to the influences of international structures, but the Basin itself also has its own unique structures and mechanisms that emerge from its culture and history of development. By analysing these meso-scale mechanisms it is possible to glean a clearer understanding of the complex forces that drive and enable hydropower development.

A second explanation may be found in the suite of research methods used in political ecology. I argue that political ecological analyses distance themselves from positivist inquiry. Rather the concern is how power is constructed. International Relations theory on the other hand tends to be positivist in nature. This may explain why political ecology focuses its analyses on sub-national scales as opposed to looking at state relations. In spite of political ecology's limited application to larger scales (as demonstrated by Sneddon and Fox (2006)) the approach has been found to be useful at the Basin scale. Political ecology's utility in helping elucidate power relations at the Basin level is illustrated by this study and further supported by recent research on the Mekong Basin (Matthews, 2012; Kuenzer et al. 2012).

Political ecology is one of the few theories that has emerged from the discipline of geography. Political ecology is well suited to geography's interdisciplinary bridging of

social and physical science because it is a fusion of social and biophysical conditions. In analysing Laos hydropower development, interdisciplinary perspectives are essential for understand both the political and economic forces that drive environment change, but also how this environmental change impacts local people and the ecosystem services of the Basin.

3.7 Analysis of Mekong Hydropower by Geographers

Over the last five decades, extensive geographical research has been carried out on Mekong Basin hydropower development. White's (1962) study was the first in the Region to focus on the social and environmental impacts and benefits of mainstream and tributary hydropower development in the Basin. White's integrated approach to hydropower and Basin management came at the same time as the environmental movement was establishing itself. This movement was the first widespread recognition that society and its technologies could have serious, lasting and widespread effects on the Earth's environment including its water resources. White's study, which was funded by the United Nations Economic Commission for Asia and the Far East (ESCAFE), was the first detailed analysis in the Region that linked cooperative Basin management of hydropower development to flood control and economic growth. White emphasized the need to implement flood control, irrigation and hydropower in a way that 'tangible social transformations that must accompany them if they are to serve their purpose.'

From the 1960s to 1990 the majority of social science research on Mekong Basin hydropower weighed the impacts of mainstream dams against the benefits and need of hydropower dams. This research draws from the environmental movement and White's calls for integrated water management. Wheeler's (1970) research into the 'International Multipurpose Water Resources Development in the Lower Mekong Basin' discusses the importance of water for life and the need for data and planning in river basin development. Wheeler emphasizes the strength of cooperative

approaches of the Mekong Committee. While the study outlines the plans for multipurpose mainstream and tributary dams, and highlights the importance of environmental protection, the paper contains broad and optimistic statements. When discussing mainstream dams, Wheeler states that "benefits to all the Basin states would seem to outweigh by far any adverse effects." (1970:38). These statements speak to a lack of understanding of transboundary social and environmental impacts and the power of economics and politics to drive hydropower development that remain over 40 years later to the present day.

Wah's (1985) research entitled 'Oil Substitution in ASEAN: Problems and Prospects' states that hydropower development in the Mekong Basin is becoming increasingly cost effective compared to oil production, but is hampered by political tensions among the riparians. Halbertsma's (1987) study of the legal aspects of the water resources development in the Mekong stated that although there was an effort to incorporate environmental and social impacts in the Mekong Committee's plans "international integrated river Basin development, such as the equitable utilization of water resources, the priority of uses, allocating costs and benefits, and developing legal and administrative frameworks for the construction and operation of mainstream projects, have largely been left in abeyance." (ibid: 28). Halbertsma was perhaps the first to identify the need to solve a number of legal and institutional arrangements around mainstream projects and their impacts before they proceed.

Piper et al. (1991:51)'s analysis of how the Mekong's flow regimes would change with mainstream dam developments discussed the need to 'balance the demand for hydropower and rice production with environmental considerations', including fisheries, flood control, navigation and forestry. Piper et al. (ibid) emphasized that the development of the Basin requires agreement between countries and more robust data than was available at that time.

Prior to the 1990s, social science research on Mekong hydropower development incorporated environmental concerns, but generally concluded that the benefit of dams outweighed their costs (See Wheeler, 1970). From the 1990s, however, social science research incorporating strong critical geographical and political elements began to analyse the political and economic impacts of hydropower development on livelihoods and local and transboundary environments. This new wave of research often questioned whether the cost of dam construction, in terms of impacts, outweighed its benefits.

Much of this new research formed around the controversy surrounding the Pak Mun and Rasi Salai dams in Thailand. Roberts' (1993) study linked the impact of the Pak Mun Dam on local fisheries and livelihoods while Hirsch's (1995) geopolitical study of Southeast Asia showed that the dam breached the political limits of hydropower development within Thailand. Hirsch also projected that the future may see Thailand's building extensive projects in neighbouring countries where they appeared to have a lack of concern for the environmental impacts of these developments.

Mitchell (1998) and Radosevich and Olson (1999) use political economy arguments to analyse the past half century of water use and hydropower development. These researchers remind us that power and economics in water management is not as straightforward as the large state versus the homogenous community. Mitchell's (1998) analysis of the political economy of Mekong Basin development focuses on the political aspects of decision-making and how the benefits and impacts of decisions have uneven distributions. Mitchell also begins to analyse some of the geographical scales and their linkages looking at global influences on development and how these translate into changes in regional and local scales. Importantly, Mitchell identified the emergence of conflict between Basin-wide coordination, promoted by the MRC and its donors, and the individual national agendas. The conflicting agendas of the MRC and individual Basin states gained pace during the 1990s as the Region stabilized and financing availability increased. As will be explored in Chapter 7, Mitchell's (ibid:79)

statement that the MRC is 'constrained by the political environment within which it functions' is as true today as it was 20 years ago.

During the 1990s, research on Mekong hydropower was highly critical of the World Bank's role in funding hydropower dams. Huyser (1994) and Rich (1994) argued that the World Bank's role in funding Mekong hydropower neglected environmental and social concerns instead prioritizing economic growth to the detriment of local livelihoods. As noted above, this research combined with global criticism of the WB's large-scale infrastructure projects resulted in its temporary suspension of WB funding for these projects.

Throughout the 1990s, an increasing number of researchers from within the field of geography began to focus on analysing issues of scale and power within the Basin. Usher's (1996) examination of hydropower development in Laos examines the issues of power and decision-making by the state, developers and private consulting firms across regional and local scales. Usher highlights the growing influence of private consulting firms and the conflict of interest in hydropower expansion. The private consulting firms act as a 'go between' among the Government and developers and are often hired to complete the Impact Assessment, but also to design the projects. Usher (ibid:87) states that 'this dual role…..practically ensures that negative effects of projects are systematically glossed over'.

Bakker's (1999) examination of Mekong hydropower politics examines the constructed scale of the Mekong 'watershed' and the development of the 'corridor of commerce' within the Basin. Bakker's further analyses the emergence of the private sector as a new and opaque form of governance. Bakker posits that the increased role of the private sector in hydropower development will further decrease transparency and accountability in hydropower development.

From 2000 to 2012 the literature, from both social and physical sciences, analysing Mekong Basin hydropower has continued to expand in breadth and gather pace. International relations theory has framed Basin development in state-centric focused research analysing water cooperation and conflict. Other IR researchers have analysed China's role as a hegemon employing regime theory and have looked at securitization to explain how water resources are shared (See. Backer, 2007; Makim, 2002; and Meninken, 2007). Mirumachi's (2011) useful political economic examination of Thailand's domestic water policy highlighted the transboundary impacts of Thailand's securitized and politicized water allocation and utilization discourses.

Lebel et al. (2005), Sneddon and Fox (2012) and Suhardiman et al. (2012) have analysed the scalar strategies and scalar disconnections between actors contesting and promoting hydropower development in the Basin. Lebel et al.'s (2005) analysis of the politics of scale, position and place in the Mekong draws out a number of key points. In terms of scale, Lebel et al. suggests that impacts of poorly managed water governance are often local, yet the decisions that address and determine these impacts often take place in meso-scales such as state or even regional contexts. Local impacts caused by hydropower dams often occur in mountainous areas confined to natural resource dependent groups, who are often ethnic minorities. The people and the environment impacted by dams are often without voices while the hydropower decision-makers and the people in charge of mitigating the impact of these decisions (both environmentally and socially) often exist at scales very different to the people and environment in which their decisions take effect.

Lebel et al. (2005) further discusses the scale of social justice within the Mekong Basin. The Asian Development Bank's labelling of the Region as the Greater Mekong Sub-region raises the scale of water resource planning to the Basin level away from

individual states or rivers. This rescaling has the potential to diminish the importance of regional or village level environmental and social impacts of development. By examining the benefits of hydropower and interconnectivity via roads and power grids the Greater Mekong Sub-region dismisses the individual nature of Basin states and the diversity of people and environments within those states.

Dore and Lebel (2010) and Sneddon and Fox (2012) discuss the 'many Mekongs' and how each is constructed by powerful actors' framing of the River and Basin. The Basin can be understood as geopolitical, biophysical, developmental or a plurality of these understandings. How the Basin is perceived provides an input into how it is managed. As will be discussed in upcoming chapters the framing of the River is contested by various groups within and outside the Basin each pursuing their own objectives.

Suhardiman et al.'s (2012) scalar analysis demonstrates that donor objectives surrounding the promotion of Integrated Water Resource Management (IWRM) and presented through the MRC often conflict with individual nation state water management objectives. The disconnect between regional Government agendas and donor objectives causes an impasse in project development and has contributed to decreasing the MRC's effectiveness as a River Basin Organization. As will be discussed in Chapter 6, this disconnect may also serve to delegitimize other efforts at IWRM and Basin-wide water management plans, increasing the lack of transparency. National governments may view any efforts introduced by outside actors concerned with the environment or social issues as something they must pay lip service to, but that are counter to national efforts to quickly modernize or develop their water resources.

In *The Anti-Politics of Mekong Knowledge Production*, Kakonen and Hirsch (2010) discuss the lack of transparency surrounding knowledge production within the Basin and the MRC. To understand the importance of knowledge production in the Mekong

it is necessary to question the drivers and enablers that shape the knowledge and interpretations of it. Kakonen and Hirsch (ibid) posit that the hydrological models that the MRC relies heavily on for its Basin plans and decision-making are driven by state-centred agendas that simplify the complex nature of the Basin to make it more malleable to hydropower development agendas.

Drawing from the physical and social strengths, geographical research in the Mekong Basin has greatly contributed to a critical understanding of both the benefits and costs within hydropower development. Political ecological research has built on the strengths of physical and social geographical analysis in the Basin and has contributed to an increased recognition of the scalar understanding of power within the hydropower debate.

3.8 Conclusion

This study aims to take the political ecology research beyond an analysis of local to global linkages to a nuanced understanding of the meso-scale mechanisms and narratives, both political and economic, which drive and enable environmental change. The approach of political ecology is appropriate for this study because, like geography it is an interdisciplinary approach. The incorporation of ecological and political economy perspectives is essential in understanding hydropower development in the Mekong Basin, an area where much of the Basin's population is directly reliant on ecosystem services for both their livelihoods and their food security. The deconstruction enabled by the political ecology approach and the critical analysis of narratives will be shown to enable the interrogation of the agendas behind hydropower actors in the Region. Finally, when used in a meso-scale analysis, the political ecology approach draws out the political and economic mechanisms that are driving environmental change within the Basin. These mechanisms connect the state to regional and international forces as well as to local ones. Combined, these insights result in a revealing picture of who stands to win and lose from hydropower

development and why. The next Chapter, will explain the methodological approach used in the study.

4 Methods Chapter

4.1 Introduction and Brief Background to the Methods

The purpose of this chapter is to present the methodologies deployed to answer the research questions. The chapter begins by examining the history and motivations leading up to the start of the study. It then briefly discusses the use of methods in political ecology, before exploring the research approach, which interprets the role and effectiveness of the Impact Assessment process. It proceeds with an explanation of the multiple methods used in the research including interviews, both formal and informal, documentary research and participant observation. Using a multiple methods approach triangulated research findings, which in turn increased confidence in their validity. This verification by multiple methods further helped to uncover and reduce bias that may exist in the research (Creswell, 2009). The chapter then examines the research stages and data collection methods before discussing the use of case studies, narrative analysis and grounded theory. The chapter concludes by discussing the methodological limitations.

Personal experience is a key component of the qualitative research process (Denzin and Lincoln, 2005). Behind the theory, analysis and methodology personal experience situates how the researcher approaches the world (Silverman, 1999). The personal experience of the researcher, however, must always be understood to be influenced by gender, social class, race and ethnicity (Denzin and Lincoln, 2005). This dissertation draws from seven years of work and research experience in the Mekong Basin starting in 2006.

In 2006, while studying for a master of International Development and Environmental Analysis at Monash University, I was employed as a consultant by Oxfam Australia to research and write a report on the negative impacts of development in the Mekong

Basin. This report entitled "*Hidden Costs. The underside of economic transformation in the Greater Mekong Subregion*" focused on ADB led hydropower development and environmental change in the Basin. While presenting this report in 2007, at the University of Sydney at an Australian Aid (AusAID) conference entitled *A Greater Mekong? Poverty, Integration and Development,* I began to develop a wide network of professional and research contacts, which helped to inform my knowledge of the nature of hydropower development in the Mekong Region.

From 2008 to 2010, while working as the Education and Research officer at the International WaterCentre (IWC) in Brisbane and an Adjunct Lecturer at the University of Queensland, Australia, I taught integrated water management courses which covered Mekong Basin water governance. I also led a two-week trip to Vietnam to meet with senior Government officials to discuss collaboration opportunities relating to water research. In 2009, I was invited to join a UNESCO-IHE working group on *Water, Cultural Diversity and Global Environmental Change* as a result of my experience in the Mekong Basin. As a member of this group, I presented material on Mekong Basin hydropower development at a UNESCO symposium in Kyoto Japan in 2009. In 2010, building from these experiences and knowledge, I began my PhD.

4.2 Methods in Political Ecology

Early political ecology relied heavily on using "chains of explanation" as a method for the approach (Blaikie and Brookfield, 1987; See also Chapter 3). As political ecology developed and the approach broadened, however, political ecology's interdisciplinary nature began to rely on multi-dimensional methods of analysis. This history of mixed-methods has made for a wide degree of choice of methods from the suite of political ecology approaches (Bassett and Crummey, 2003; Batterbury et al., 1997; Fox et al., 2000 etc.). The focus of the study is on mixed qualitative methods.

Hydropower development in the Mekong has been impacted by many historical and contemporary conditions that involve a large number of actors, asymmetric power relations and diverse narratives. The study is concerned with the examination of political, economic and social mechanisms and narratives associated with the Impact Assessment processes, which influence the trajectory of hydropower development and the distribution of its benefits and impacts at a meso-scale. These mechanisms are examined using a combination of case study analysis, interviews, participant observation and field work.

The political ecology analysis of agendas behind narratives and policy statements from the Region help to highlight the key mechanisms while demonstrating the existence of the nuanced impacts of asymmetric power relations (Bassett and Zueli, 2000). Hajer (1995) posits that the institutional context behind statements is as important as the statements themselves. Actors often interpret stories differently and across different scales. Their perspectives are determined by their backgrounds and the resulting interests and agendas. Furthermore, the existence or absence of state structures, the rule of law, regulations and transparency all influence how hydropower projects get on the agenda and are installed and who stands to benefit and lose from their construction.

The mixed method approach is appropriate for political ecology because it allows the researcher to analyse and draw from a broad set of data to uncover the often non-transparent meso-scale mechanisms and narratives that drive and enable hydropower development.

4.3 Methodological Considerations: Multiple meanings, inductive and deductive reasoning and scale

4.3.1 Multiple Meanings

Throughout the research process, the data collected were analysed in terms of multiple meanings, patterns, anomalies and types. The study recognizes that knowledge and facts cannot be separated from the researcher's experience and expectations or the social and political contexts in which they are collected (Alversson and Skoldberg, 2000). Although the focus of this research is based on qualitative data, quantitative data have been used to establish other viewpoints and interpretations where possible. For example quantitative data was examined to measure the potential social and environmental impacts of dams in Laos.

4.3.2 Inductive and Deductive Reasoning

This research uses both inductive and deductive reasoning in its approach. As stated by Fine (2004), we are both inductive and deductive theorists as we learn from new situations and our exposure to ideas and theory increases, and then use this learning to produce new ideas and concepts. By using this reflexive approach the researcher continually reflects on the research questions and data collected to refine conceptual frameworks and, if needed, collect new data. Throughout this research, research questions were progressively checked against the data and information being assembled. If the data invalidated them they were adjusted. For example, the initial research questions were focused on the problems inherent in impact assessments in Laos. After my first scoping trip and reinforced by my intensive field work data, I realized that impact assessments were often just a rubber stamp for development. I found that asking what drives and enables the shapes and outcomes of the impact assessment process were more relevant to how hydropower was being constructed in the Region from a political ecological perspective.

4.3.3 Scale

A defining characteristic of political ecology is its analysis of scale (See Chapter 3). This research operates at a meso-scale to analyse the mechanisms that drive and enable hydropower development across the Basin, with a particular focus on Laos. The meso-scale allows the research to draw from influences in broad macro, meso and local scales. The Impact Assessment process sits within the meso-scale as it is influenced by both regional and local factors. Grounded research was also used to verify the data collected. Exploring research across these scales allows for richer, more meaningful findings. The importance of scale from a political ecology perspective is discussed in detail in Chapter 3.

4.4 Research Stages

The research comprised six stages that were continually revisited throughout the thesis. Adapted from Tashakkori and Teddlie (1998) this five stage approach included: (1) setting the research questions; (2) developing the analytical framework; (3) developing the methodological framework; (4) collecting data and (5) analysing data. The research adopted a non-linear approach. Figure 4-1 shows how each stage of the research has informed other stages in a radial and reflexive manner.

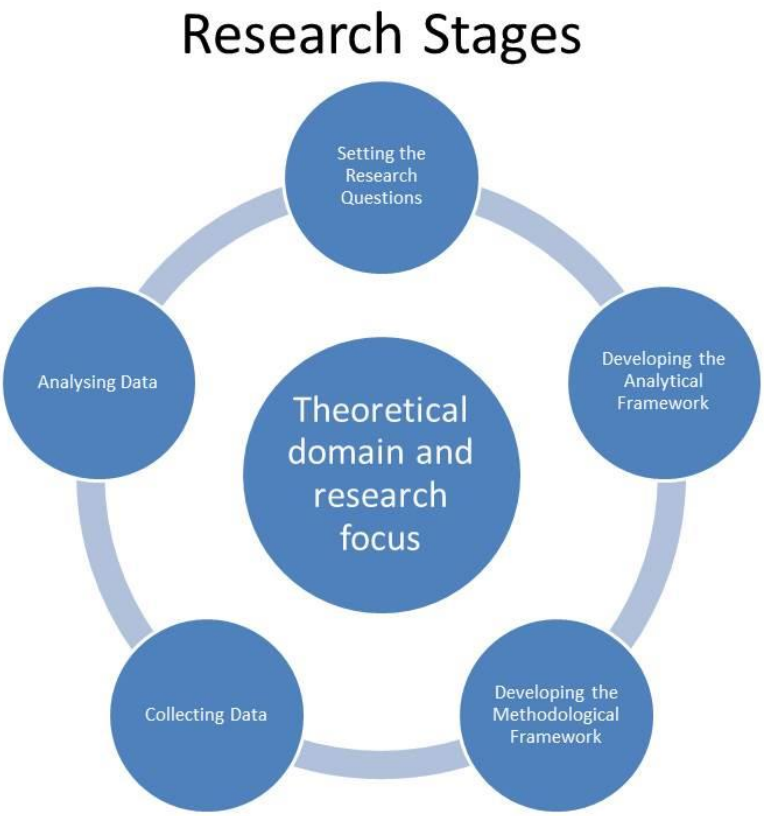

Figure 4-1 Research stages Source: Author

4.4.1 Five Stages of Research

The following section outlines the interconnected stages of the research following from the inductive and deductive research process outlined above.

Stage 1: Setting the research questions: The research questions were informed by insights and professional experience gained in the Mekong Basin prior to the inception of the study and by an extensive literature review conducted prior to commencing fieldwork. The questions were also influenced by my interest in how social power was being employed through hydropower development. During this stage, I reviewed the academic literature surrounding hydropower and had my research questions critiqued by a number of experts who work in the Region. This reflexive process helped to strengthen my initial questions and to improve my

research focus. The upgrade process and a presentation to the geography department at KCL provided further feedback.

Stage 2: Developing the analytical framework: Stage 1 helped to frame the research and inform the development of the analytical framework. A strong analytical framework was essential as very little previous analysis has been conducted at a meso-scale into the mechanisms that drive and enable hydropower development across the Mekong Basin. The development of the analytical framework has been reflexive. With very little evidence available into the mechanisms that drive hydropower development across the Basin, I was motivated to seek feedback on the robustness of my research questions and findings throughout the PhD process. To meet this objective I presented my research at a number of seminars and conferences during the three years of the study. These presentations gave me opportunities to receive critical feedback and new sources of data from key informants across the Region and internationally. For example, during a presentation at the World Water Congress in 2011 in Brazil I received feedback from a lawyer working with the World Bank and a number of hydropower developers in the Region. I was able to meet with him for a more detailed discussion in Stockholm at the World Water Week in 2012. He provided a number of key insights into Government capacity in the Region. This is an area that I had not previously looked into in detail. The subsequent investigations turned out to be extremely fruitful for the research.

As a participant observer, while asking questions and observing international and local meetings on hydropower and Mekong development, I have also been able to strengthen my research networks and collect data. Finally, I was able to test my findings by publishing a book chapter with Springer and a paper in Water Alternatives. These publications raised the international profile of my research and resulted in interviews with the Reuters, The Bangkok Post, and the LA Times and the environmental writer Fred Pearce. All this engagement extended my science and professional networks and provided ample opportunities for both positive and critical

feedback on my approaches. Table 4-1, lists the meetings and presentations attended for reflexive feedback during PhD research and the purpose of my participation.

Table 4-1 Meetings attending during the PhD process and purpose of attendance.

Source Author

Meeting Type	**Primary Purpose of Participation.**
5th International Hydro-Hegemony Wokshop, King's College London & University of East Anglia 8th – 9th May 2010	Participant Observer: Discussions on research questions and networking.
Stockholm World Water Week, Conference – September 1st – 7th 2010	Participant Observer: Discussions on research questions and networking.
XIVth IWRA World Water Congress, Porto de Galinhas, Brazil 24th – 28th September 2011	Presenter: Using impact assessments as a lens to understand hydropower development in the Mekong Basin: Case study Lao PDR.
University of Brunei Darussalam, Department of Geography 1st February 2012	Presenter: The Mekong Basin Water and Energy Nexus.
World Water Forum, Marseille, France. 12th – 17th March 2012	Presenter: Understanding the drivers and enablers of hydropower deve;p[,emt.
UNESCO-IHE, Delft, Netherlands. 17th May 2012	Full day guest lecture: Water Planning and IWRM in the Mekong Basin.
Stockholm World Water Week, Conference – 26th – 31st August 2012	Participant Observer: Discussions on data analysis and networking.
King's College London, 30th October 2012	Guest Lecture: Water and Energy in the Mekong Basin.
The Challenge Program on Water and Food,	Presenter: Managing Controversy in

Mekong Hydropower Forum, 13th – 14th November	Hydropower Development.
6th International Hydro-Hegemony Wokshop, King's College London & University of East Anglia 11th – 12th January 2013	Presenter: Tipping the Scales of Justice: Understanding notions of debt and justice in the Mekong hydropower debate.
University of East Anglia, Norwich, 16th January 2013	Invited talk: The political ecology of Mekong Hydropower.
The London School of Economics and Political Science, Oikos Society 1st March 2013	Presentation: Impediments to sustainable hydropower in the Mekong Basin.
Stockholm World Water Week, Conference – 1st – 7th September 2013 August 2012	Panelist: Achieving Justice Through Transboundary Water Cooperation.

Stage 3: Developing the analytical framework: Stage 1 and 2 informed the methodological framework through the identification of appropriate and available research objectives. Political ecology was chosen as the overarching analytical framework because of its incorporation of political and ecological concerns. As discussed in Chapter 1, these two concerns are essential to the Mekong Basin, where people's livelihoods and the environment are deeply intertwined. Political ecology is appropriate for this study because of its critical analysis of scale, discourses and mechanisms (see Chapter 3).

The methods used for data collection and analysis were defined as case studies, document analysis, interviews, narrative analysis, participant analysis, grounded theory and triangulation. Each of these methods is discussed further below. Stages 1 to 3 were constantly reviewed and refined throughout the PhD research as part of the reflexive research process.

Stage 4: Collecting Data: Guided by the research questions and the analytical and methodological framework, and informed by feedback from presentations and networking, the majority of data was collected between January 2011 and December 2012. Data were collected through interviews, both informal and formal and from documents and secondary data sources. Through presentations and networking, the data was continually tested with international and domestic audiences.

Stage 5: Analysing the data: Data collected in the field along with that from desk studies was used for analysis of the research questions. Interviews were transcribed. The theoretical framework of political ecology framed the analysis of the data in a critical light.

4.5 Data Collection Methods

The three primary methods used for data collection and analysis were: document analysis, interviews, and participant observation. Case studies, narrative analysis, grounded theory and triangulation were used reflexively to test or strengthen the data collected from the three primary methods. This rigorous form of data collection helped to remove bias while uncovering useful information.

4.5.1 Document Analysis

Document analysis is useful for qualitative research at two scales. At the micro scale, document analysis can help to understand the image that an organization wishes to portray (Travers, 2001). For example, a report from a hydropower developer helps to understand the type of image they wish to project to potential clients and critics. At a macro level, document analysis can be used to determine the extent that policies and

laws are being implemented and reflect the agenda of actors involved in the process (Travers, 2001). For example, in Laos, the analysis of laws and policies surrounding impact assessments was compared to the actual practice of developers to demonstrate that the practice and agenda of the Government was different than the one it promoted.

Detailed document analysis consisted of both primary and secondary sources. Primary sources included, memorandum of understandings, environmental impact assessments, minutes of meetings and negotiations, legal documents including agreements and reflections from consultants involved in the Impact Assessment process and websites and company reports. The reflections from consultants involved in the IA process provided valuable first-hand commentaries into the process and its perceived drivers and enablers. These sources helped to identify further points of research inquiry. Recognizing that reflections often include a degree of personal bias, I carefully checked the validity of these documents with other secondary sources.

Secondary sources included published papers books on political economy, political ecology, political geography and analyses of the hydraulic development of the Mekong Basin. Secondary sources also include quantitative research studies of the environmental impacts of hydropower.

Media articles were particularly useful to identify policy statements and narratives. This element of the research was significant as the media in the Mekong Basin are often controlled or heavily influenced by the state allied to private sector interests which together control the media. For this purpose I examined major English newspapers published in across the Basin as well as systematic searches using Google News. Grey literature was also used. This included brochures, newsletters, reports published by governments, NGOs, UN agencies, research institutions and consultancy firms. These were both printed and online documents. Some of the grey and media

literature was found in personal collections from long-term actors living in the Basin. Much of the analysis in Chapter 5 draws from these documents.

4.5.2 Interviews

Interviewing was one of the primary sources of research methods used. Interviews helped to strengthen and add colour to the document analysis. The research employed a combination of elite and non-elite interviews.

By using elite interviewing the interviewee is free to highlight important events or incidents related to the research topic. A key benefit of elite interviewing is that 'an exception, a deviation, an unusual interpretation may suggest a revision, a reinterpretation, an extension, a new approach' (Dexter, 2006: 19).

Elite interviewing can be particularly useful in transboundary water situations where there are many sensitive security issues. Elite interviewing can uncover previously unknown information or provide unique insights (Tansey, 2007). Elite interviewing, however, like any method has its limitations. It places emphasis on the interviewees' interpretation of the topic. During elite interviewing there is a degree of flexibility in responses to the questions and the interviewer must decide when to intervene and when to ask for clarification and more information. As Berry (2002:680) states 'Interviewers must always keep in mind that it is not the obligation of a subject to be objective and to tell us the truth'.

Successful elite interviewing requires that those using the method understand its limitations. Interviewers must remember that the subject is under no obligation to tell the truth (Berry, 2002). When conducting elite interviews, interviewers have sometimes to make snap decisions on when to intervene or steer the discussion. To

help to validate data collected through elite interviewing I used the triangulation methods discussed below.

Elite interviewing is widely used in data collection. The sensitive political nature of hydropower, made even more sensitive by the announcement and ultimate start of construction of the Xayaburi dam (the first mainstream dam in the Lower Basin), resulted in elite interviewees being somewhat reluctant to participate in the research. Nonetheless, elites who did respond to interview requests provided valuable information. Access to elites for this research was facilitated by the networks established by the researcher in previous work in the Basin. These network facilitated contact with a number of elites in the Region, especially in Laos - the main focus of the study. As stated by Berry (2002) elite interviewing lends itself to open interviewing. “The best interviewer is not one who writes the best questions. Rather, excellent interviewers are excellent conversationalists.” (2002:4).

When conducting elite interviews it is best to guide the conversation, but allow the interviewer as much freedom as possible (Dexter, 2006). Elites are used to being in charge. By providing them with the ability to control the interview, to a degree, you allow them the opportunity to speak freely. Dexter (2006) states that when conducting elite interviews, the interview should take into account the following special considerations:

1. stressing the interviewee‘s definition of the situation,

2. encouraging the interviewee to structure the account of the situation,

3. letting the interviewee introduce to a considerable extent (an extent which will of course vary from project to project and interviewer to interviewer) his notions of what he regards as relevant, instead of relying upon the investigator‘s notions of relevance. (Dexter 2006: 18)

Elite interviewees were identified by their prominent positions within organizations relevant to hydropower development. Through snowballing techniques and recommendations more interviewees were identified throughout the research process.

The interview type was semi-structured using small sets of open ended questions. The semi-structured interview format takes into account the knowledge and expereince of the interviewee in shaping and conducting the interview. The questions focused around case studies and key events associated with hydropower development. Questions were adapted depending on the basin states and the background of the interviewee. For example during interviews with Laos Government officials questions concerning mainstream dams were often asked towards the end of the interview due to the sensitive nature of the subject. In interviewing these officials I discovered that questions surrounding older dams put the interviewee at ease and were a good lead into more difficult questions. In the case of Chinese actors they appeared much more open to discussing projects and strategy when they were outside of China than inside the country. The questions were designed to encourage the interviewee to offer thick descriptive explanations and their own interpretation of events. Interviewees were given freedom to discuss other topics related to the research. The majority of interviews were carried out face-to-face in the Mekong Region, with some conducted by telephone and Skype. Several interviewees were interviewed mutliple times.

Triangulation provides the research with a method to verify findings through "—convergence, corroboration and correspondence of results from different methods" (Darlington and Scott 2002: 121). For this research, triangulation was conducted between primary and secondary data sources and from interviews. This triangulation helped to verify data sources and data analysis as the research developed.

Interviews included senior Government officials, senior employees of dam developers, political advisors, diplomats, consultants, local people, NGO staff, ministers, and senior and ordinary officers of the Mekong River Commission. These individuals were often intimately involved in the Impact Assessment process and in some cases directly in the hydropower decision-making process. The interviewees were initially selected on the basis of experience within the Basin and then on their availability to be interviewed. Interview groups are identified below in Table 4-2.

Table 4-2 Interviews and Descriptions

Source Author

Interview Groups	**Description**
Hydro-cracy	Bureacrats from the Minisitries of Environment and Water Resources
	River basin organization managers and project/program officers
	Local politicans
Academics	University research staff, research centres
NGO Activists	Activists from local, regional and International NGOs focusing on water resources
Consultants	Current and past consultants both independent and private and publically

	affiliated
Officers of international lending bodies and international organizations	Project and programme officers from the World Bank and the Asian Development Bank

Before conducting interviews, I gathered as much information as possible on the interviewees. This helped to identify actual and potential bias in the data by situating responses in the context or previous experience (Berry, 2002). In many cases I verified data collected by asking same questions to other experts in the Region.

English was used for the majority of interviews. The countries of the Lower Mekong Basin use English as a regional working langauge and when dealing with external actors. Furthermore, English has been the working language of the MRC and lower Mekong cooperation since the inception of the Mekong Committee in 1957. In the few cases where the interviewee did not feel uncomfortable a local researcher interpreter was used. The interpreter, had experience as a social science researcher and was aware of interview bias. I also rephrased questions to check for accuracy (Corbetta, 2003).

The majortiy of interviews were not recorded in audio format. Instead shorthand notes were taken during the interview and more detailed notes were written up after the interview had concluded. This method allowed the interviewee to feel comfortable when discussing sensitive information. This was esepecially important for my study on account of the sensitive and controversal nature of hydropower development in the Mekong Basin. Furthermore, all interviewees were told that the data collected during this study was for academic research purposes and that they would be kept completely anonymous to avoid statements being attributed to any

indivudual. Many interviewees expressed concerns that previous academic studies had not done enough to protect interviewees or data.

In order to prevent the identification of interviewees, interviews have been referenced by the year of the interview and under the following categories, where X corresponds to a number in the Appendix: Government official (GX), Private Sector Consultant (PSX), Development bank representative (ADBX or WBX), Civil society individual (CSX), Hydropower industry official (INX), MRC offical (MRCX), Media Individual (MX), Hydropower Lawyer (HLX), Fisheries Expert (FX) and Reporter (RX).

Interviewing primarily in English had some analytical and methodolgocial consequences. Interviews were mainly conducted with experts and informants that were confident in their English ability. In elite interviews, the majority of Government officials who participated in the research were from the national level as most provincial and local officials did not speak English, nor were they willing to participate. This may have overly focused research findings on meso-scale issues. However, throughout the research process many informal conversations and meetings with local people and non-elite actors were used to verify the data collected in the elite interviews. Finally, as interviews were conducted in the participants' second language there is always the possibility of misunderstanding. To minimize this I rephrased questions to ensure validity. Furthermore, my previous experience in the Mekong Basin was useful for understanding the cultural norms and meanings that emerge through language.

4.5.3 Participant Observation

Participant observation is one of the most comon forms of data collection in qualitative research. Participant observation allows the observer closer contact with others than shorter interviews may entail (Bryman, 2004). Longer time with others has the advantage of allowing the participant observer time to participate in the

same activities as the people being studied and understand the social setting in which the research is situated in detail (Bryman, 2004).

Participant observation was utilized at a range of meetings and consultations in the Mekong Basin between January 2011 and December 2012. I partcipated and observed meetings involving civil society and the MRC as well as between state officials and consultants. I further participated and observed meetings with a range of water experts including NGOs, academics and researchers. Partcipant observation is an important area of data collection in the study of politics (McNabb, 2004). It is particularly useful in encouraging relfexive research when analysing case studies (Jorgensen, 1989). By observing meetings with a range of actors I was able to see how narratives clashed and how actors constructed narratives to support their own agendas. In the 2012 Mekong Hydropower Forum, for example, I observed a International Rivers (IR) representative attempt to critique an employee of Lancang Hydropower regarding their development plans for the Lower Sesan 2 dam in Cambodia. The juxtaposition of the two narratives, with International Rivers promoting a pristine undammed Basin needing protection and the Lancang Hydropower representative stating that development would bring important benefits with few environmental or social costs, was illustrative of the narratives that emerged in the media and my interviews. Furthermore, partcipant observation was useful for the study as it helped to inform the researcher about where to look for data and who to contact for interviews. Through participant observation I was also able to gain useful feedback on my observations.

4.6 Case Studies

Case studies are an appropriate research method for this study because they have provided in-depth descriptions and insights into the Impact Assessment process and grounded it with real examples. They are particularly useful for descriptive,

explanatory and exploratory purposes (Yin, 2009). Schramm (1971:23) states, "The essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions …". During research, case studies helped to link narrative analysis and interviews with specific examples. For example, the study used the Xayaburi Dam as an exemplary case study with a number of smaller individual dam case studies to inform the empirical research. The Xayaburi was chosen as an exemplary case study for three reasons. First, because the controversial Environmental Impact Assessment process and the decision to build the dam unfolded during the period of my research. Second, because it was a new development very little or no research had been conducted into it previously. Third, the case study involved a number of actors and controversies associated with other hydropower developments in the Basin. The repetition logic of combining a detailed examination of the Xayaburi Dam case with smaller case studies helped to determine whether the case study findings were generalizable (Yin, 2009). The research questions helped to identify appropriate case studies and insights gained from them were linked to theoretical framework and then to the analytical framework.

Dams in Laos were chosen based upon their size, prominence and data availability. The sensitive nature of hydropower and restrictions on visiting some sites made it impossible and unsafe to examine all dams in detail within the time constraints of PhD study. The dams examined, however, provide a range of examples from privately funded and developed through to World Bank and Asian Development Bank assisted projects.

4.7 Narrative Analysis

A narrative is broadly defined as telling a story (Berger, 1997). Narrative analysis enables researchers to examine the broader social and spatial relations that influence and inform policy positions and statements and interviews. Interpreting narratives is

an important skill where qualitative research is a significant element of a study (Limb and Dwyer, 2001). In interviews, narrative analysis provides an opportunity for dynamic perspectives to be introduced into the research topic. The challenge for researchers is to decide how to interpret and record these perspectives. Coding has been proposed as an effective method in analysing research (Coffey et al., 1996). A reliance on the highly structured nature of coding, however, often means that the layers of meaning within the interview are lost. For this reason, coding was not used in the study.

For this study, narratives were analysed for their meanings. Narrative analysis focuses on the embedded meaning behind a particular story or statement. Narratives are generally presented as a presentation of connected events with a temporal structure (Labov, 1972). However, narratives also mirror culture, perceptions and agendas (Cortazzi, 1993). Labrov (1972) states that the narrative's evaluation is essential to its analysis; in the evaluation of the narrative lays the information on how the story should be interpreted. For example, in the Mekong Basin, the pro-hydropower narrative and the policy statements behind it state that hydropower is good for the environment and essential for development. This is the story that developers and states want to emphasize to legitimize their decision-making. It also attempts to delegitimize other stories. Narratives emerge in ways that are meant to shape the impact on the audience. They are dynamic rather than passive descriptive statements (Cortazzi, 1993).

Description itself is also subject to interpretation and stories are relayed in the way that the narrator wants the audience to see or relate to it. The narrator also attempts to explain a story in a way that is plausible and relevant to the audience (Labov, 1972). By critically examining narratives we are able to begin to understand what motivates the narrator. When we combine this with an understanding of the larger political and social factors that frame narratives we can begin to develop a clearer picture of the agendas and meanings behind them. It will be discussed in Chapter 5,

how narratives are used by different actors across the Basin to legitimize their agendas while delegitimizing contesting agendas.

There are some limitations to narrative analysis, however. Narrative analysis provides no guidance on where to focus. The researcher is left to decide what part of the narrative is the most important. This choice will be influenced by the researcher's perceptions of the story and the political, economic and social frame in which it sits. Narrative analysis is one important part of the geographical methods, but it not the only method. This study has used narrative analysis in the Mekong Basin hydropower debate to draw out some of the nuances in meaning and hidden agendas behind actors who support or criticize hydropower development. In this study narrative analysis is especially useful for analysing policy statements that emerge from actors in the Region via reports and the media. By analysing the narratives and agendas behind these policy positions and combining this with an understanding of mechanisms within the state that allow powerful actors to benefit from hydropower we begin to see the differences behind the rhetoric and reality surrounding hydropower development.

4.8 Grounded Theory

Grounded theory is an inductive method used to develop theory and verify data from facts on the ground (Glaser and Strauss, 1967). Although this research was conducted on a meso-scale the data were analysed against case studies and realities on the ground as a form of verification. Grounded theory was also used to help guide the research plan and assumptions formulated at the beginning of the study (Glaser and Strauss, 1967). For example in Chapter 6, the study first presents a broad discussion of political and ecological mechanisms that drive and enable hydropower in Laos. These mechanisms are then grounded with specific case studies that demonstrate

their social and ecological impacts. This reflexive approach strengthened the research process and the data collection methods.

4.9 Potential Methodological Limitations

Although care was taken to ensure that research methodologies were appropriately selected and critically examined throughout the research process, methodological limitations remain. First, the nature of hydropower development is a politically sensitive and sometimes a highly controversial topic linked to millions or billions of dollars in investment, and to security issues and political power. These links make data collection difficult for a postgraduate researcher. In some cases potentially useful information proved to be unverifiable and therefore had to be dismissed. The use of expatriate consultants in hydropower development in the Basin is widespread and there is a very high turnover of experts. Occasionally it was not possible to track down appropriate professionals and in other instances institutional or personal memories were lost. Rigorous analysis through triangulation and grounded theory was applied to ensure a high accuracy of data analysis and collection; however, should other interviews and documentation be available more comprehensive data may be collected.

Second, this study's focus is on Laos as it is the centre of hydropower development in the Mekong Basin. Despite this appropriate focus other hydropower developments are occurring across the Basin, including dam development in China, Myanmar, Cambodia and Vietnam. These were excluded due to data unavailability, security issues and time constraints. Laos, however, provided rich data for some elements of the analysis and is representative of broader basin drivers and enablers. Although Laos was the focus of the case study, some analysis of the other Basin countries, excluding Myanmar, is included to help frame and strengthen the argument. Myanmar was not included for any research both because of its small territory within

the Mekong Basin and because at the time of starting the research it was not deemed as a safe destination. Furthermore, there is limited data from Vietnam due to the limitations on the study and the availability of data.

4.10 Conclusion

This chapter has provided the methodological framework developed for the analysis. The methodological framework was informed by the theoretical and analytical framework presented in Chapter 3. The study uses case studies, document analysis, interviews and participant observation as the primary methods for data collection. These methods helped to guide the research path. In order to verify the data collected and to strengthen the analysis grounded theory, triangulation, case studies and narrative analysis were employed. This rigorous mixed method approach enabled the researcher to reflect constantly on the way the evidence base was evolving and where necessary adjust the research agendas. The methodological limitations of the study are reflected in its scope, the availability of data and the sensitive nature of the subject. The methods outlined in this chapter are presented in the following empirical chapters exemplified in case studies and data analysis. The next chapters present the empirical findings and analysis of the study.

5 Bridging Scales: Actors, Narrative and Discourses

5.1 Introduction

This chapter uses a political ecology approach to examine the meso-scale narratives constructed by hydropower proponents and the changing roles of these actors in Laos and the Mekong Basin's hydropower development since the 1990s. Bryant (1992:18) reminds us that "state policies are not developed in a political and economic vacuum." (Bryant, 1992: 18). The chapter demonstrates that in the Mekong Basin, hydropower narratives form a key part of the agenda-driven development discourse. For example, a neo-liberal development discourse drives many of the state and multilateral development bank policies in Laos and the Region. At the same time, the analysis shows that narratives and policy statements also shape the political and economic nature of the hydropower development process. This process includes the complexities of project identification, investment, installation, and impacts. In all cases, narratives help us to recognize discourses across varying scales.

There are multiple definitions of the term 'discourse'. For the purpose of this research, discourse is defined as "a collection of concepts, ideas and categories through which meaning is given to phenomena" (Hajer, 1993:45). In this analysis, I apply this definition of discourse to hydropower development and its narratives. Various discourses can be based on historical references, or they can be constructed from ideologies and myths. Discourses contextualize and underpin the narratives and create a foundation for analysis (Hajer, 1995).

Narratives and policy statements also help to identify changing roles amongst actors. Examining narratives and policy statements within the Basin's broader political, economic and ecological frame, demonstrates which actors have taken on new roles since the rapid expansion of hydropower in the 1990s. These new roles provide important insights into how and why actors legitimise their activities in the hydropower development space.

The geographical emphasis of this chapter will be on China, Thailand, and Laos with a specific focus on China's and Thailand's active investments in hydropower within Laos. Although the focus of this study is on Laos, narratives from Thailand and China are also incorporated because many actors from these countries are active in, or linked to, hydropower development in Laos. It should be noted that the omission of Cambodia from this analysis is because of Cambodia's lack of hydropower development in Laos. Also, while Vietnam is active in some hydropower development in Laos, information on Vietnam proved to be limited, unavailable, or outside the capacity of the research resources available.

Narratives from all hydropower actors are constructed around different scales. These scales legitimize or support the agenda of the actors while delegitimizing competing agendas and narratives. Hydropower narratives and discourses often converge during the Impact Assessment process as actors debate and contest the potential social and environmental impacts of dams. As identified in previous chapters, this study uses the Impact Assessment process as a focus of engagement to analyse where actors construct narratives that critically engage with the economic and social benefits and costs of hydropower development. The main scale of the analysis in this chapter is at the meso-scale. Hydropower development proponents predominately deploy narratives at the meso-scale because hydropower is framed to bring national and regional scale benefits.

In the Mekong Basin, many of the narratives surrounding the environmental and social impact and benefits of dams appear in the state-controlled media and official documents from hydropower proponents. This chapter uses a combination of interviews, quotes from regional media, and official documents to critique the underlying narratives, agendas, and discourses on hydropower development. In much of S.E. Asia, the media is tightly controlled or heavily influenced by the state. The state uses the media as a signboard for its narratives, broadcasting policy statements, and quotes.

Chapter 3 demonstrated how a political ecology approach can enable a critical examination of narratives and scale. Political ecology helps to develop a critique of both the material and discursive drivers behind hydropower policy. Proponents of hydropower tend to frame hydropower development narratives around regional scale benefits while disregarding local scale impacts. The political ecological analysis of these narratives reveals that the narratives and policy statements in the Basin are driven by political, economic and historical factors that are more powerful than the regional scale benefits proclaimed by hydropower proponents. A political ecology approach also highlights how narratives and mechanisms influence hydropower development.

Chapter 2 introduced the key actors in hydropower development in the Region including the MRC, The Association of Southeast Asian Nations (ASEAN), and each of the riparian states. Chapter 2 further revealed the diversity of the Mekong riparians, both in terms of geography and in their political economies. It also served as a historical background to hydropower development, demonstrating that there have been some enduring narratives since the 1950s. Chapter 4 highlighted the methodology used in this research, demonstrating how the Impact Assessment process will be used as a starting point to analytically frame the research.

Two research questions guide the analysis in this chapter. First, what are the key narratives that legitimize the political and economic structures that drive and enable hydropower development in the Mekong Basin at the national and basin scale?

It is hypothesized that under a neo-liberal discourse, narratives centred around poverty reduction through economic growth are key to legitimizing actors advocating hydropower development. Will to accumulate greater power and profits at the meso-

scale, however, are the other hidden motivating and influential factors, which often go unexamined.

The second question is, what new actors have emerged and how have roles changed in the current phase of hydropower transformation in Laos?

It is hypothesized that due to neo-liberal discourses encouraging private investment, and due to political and economic changes in the Region, the private sector has assumed the role of primary hydropower funder and developer. This has resulted in the World Bank (WB) and the Asian Development Bank (ADB) redefining their roles as knowledge experts through narratives and policy statements.

This chapter is divided into five sections. The first four sections will examine, in turn, how development banks, China, Thailand and Laos each construct narratives and policy statements promoting hydropower development across different scales to legitimise their agendas. These four sections will also critically analyse the changing roles and relationships between these actors over the last decade of hydropower expansion. These sections will focus on the increased involvement of the private sector, and how these roles and relationships changed the landscape and narratives surrounding hydropower development across the Region. The actors mentioned above are not the only actors involved in hydropower development in the Basin. They have been selected based on their visibility, relevance to the aims of this study, and their identification during research. Finally, this chapter will critique the hydropower narratives evident in the Region. It should be noted that the majority of the Xayaburi Dam-related evidence and an analysis of INGO narratives is omitted as it will be discussed in detail in Chapter 7.

5.2 Development Banks

During the last 10 years, roles have shifted among the the key actors funding and developing hydropower projects in the Mekong Basin (Middleton, 2008; WB1, 2011). Prior to 2000, the WB and the ADB were the key funders of hydropower across the Mekong Basin. This was due to both the expertise that the WB and ADB had in developing large scale dams and the financing that they could mobilise. As part of a neo-liberal development discourse, in the early 1980s, both the WB and the ADB encouraged countries in the Mekong Basin to accept increasing amounts of private sector support to develop their hydropower. This was part of the WB and ADB's plan to use hydropower as an economic driver to bring the Basin out of poverty (Middleton et al. 2009). In this way, the goal of poverty alleviation has underpinned the dominant narratives and much of the political agenda surrounding energy development in the Region for the last 30 years.

The ADB has been working in the Mekong Basin since 1966 and all the lower riparian states are founding ADB members (ADB, 2012). Through the Greater Mekong Sub-region (GMS) Programme, the ADB is currently sponsoring a number of large-scale infrastructure projects that it claims "help generate employment and significantly reduce poverty" (ADB, 2009: 2). The WB and the ADB have also been instrumental in establishing environmental and social guidelines for hydropower development within the Basin (King, Bird and Haas, 2007).

In terms of facilitating hydropower development, the ADB has funded the construction of the GMS power grid, a network of high voltage transmission lines (See Chapter 2) to link hydropower dams with power markets in the Region. The ADB has also been active in directly funding hydropower dams including the Nam Theun 2 Dam, the Theun Hinboun Dam, and the Nam Ngum 3. The ADB's website and project documents consistently refer to hydropower development as "environmentally

sustainable renewable energy" and that income generated from these dams will assist the host country with "socio-economic development" (ADB, 2012). The ADB has often worked in collaboration with the WB in the Basin.

The WB started working in the Mekong Region shortly after its inception in 1944. In 1977, the WB began to provide assistance to Laos (Phraxayavong, 2009). The World Bank's investment in hydropower is closely aligned with the ADB's GMS Programme, including the co-funding of the Nam Theun 2 hydropower Dam. Like the ADB, the WB also links hydropower development to economic growth, sustainable energy, and poverty alleviation. In 2006, the WB and ADB collaborated with the MRC to produce the influential Mekong Water Resources Assistance Strategy (MWRAS). The MWRAS estimated that only 10% of the Mekong Basin's hydropower potential was being utilized and argued that the Basin had the "flexibility and tolerance" to develop much more of its hydropower potential. The MWRAS report promotes a narrative of hydropower as essential for economic growth that the WB and the ADB used to support their activities in the Basin.

Crucially, the MWRAS completely ignores the multiple uses of water. By suggesting that water unused for hydropower is 'not reaching its potential', the strategy ignores the well documented impact of hydropower on fisheries and livelihoods. Water is a fundamental part of culture and livelihoods in the Mekong Basin (Cornford and Matthews, 2010; Matthews, 2012 etc.). The MWRAS report focuses solely on evaluating the potential monetary and economic impacts that water has on countries in the Region. It does not account for the fact that hydropower impacts water quality, quantity, livelihoods of the poor, and ecosystems' health upstream and downstream. The MWRAS further ignores the fact that fisheries in the Mekong are primarily migratory and closely linked to the flood pulses of the river (environmental trends that would be disrupted by large-scale hydropower interventions).

For decades, the WB and the ADB have pushed policy statements that de-emphasize hydropower development's environmental impacts while emphasizing its potential economic benefits (See Chapter 2). The MWRAS report builds on these arguments, criticizing previous development in the Region as being too cautious and risk averse (MWRAS 2006:4). Statements from the report recognize that impacts will occur, but compare them with what are stated to be the larger benefits associated with hydropower, suggesting that "development and the ensuing changes in water use may have negative but also important positive impacts" (MWRAS, 2006:4). The MWRAS had far-reaching influence as a guide for policy makers. Policy makers are encouraged to form decisions around trade-offs with negative impacts that can be resolved through regional cooperation. Furthermore, the report makes no attempt to define key terms such as trade-offs or sustainability as they relate to hydropower development.

Sneddon and Fox (2012) use a political ecology approach to argue that narratives from the WB and the ADB frame the Mekong as a Region in need of economic development through the construction of large dams. This framing places the benefits of large dams at regional or grand scales. It emphasizes the role of economic cooperation and integration while ignoring the integrating role of the Basin's biophysical world. Furthermore, the MWRAS report calls for cooperation in managing impacts, an approach that seems to contrast with the political reality of hydropower development. Hydropower is often debated in non-transparent political spaces that exclude ideas such as cooperation. As a 'contested' form of development, hydropower sparks fundamental debates over its necessity. However, its impacts and benefits must be established transparently before any actors can achieve real and open public support.

The WB and ADB aprooach supports private sector involvement in mainstream dams. By encouraging private sector investment in dams, the ADB and WB used the strategy to reposition their roles away from key funding and development agencies to that of

leaders and actors in capacity building. This is underscored by the MWRAS report that emphasizes the ADB and WB leadership in the Basin and their "multilateral character and stature, ability to mobilize global knowledge and experiences, and operational involvement in investment programs" (MWRAS, 2006:52).

Highlighting the ADB and WB's leadership skills may be an attempt to reassert their authority in the Basin. As Middleton et al. (2009) states, the ADB and the WB have been forced to reframe their role in hydropower development as knowledge experts and public-private partnership builders. This reframing began to emerge during the 1990s with a phase in the neo-liberal era that encouraged heavy private sector involvement. Emphasising the WB's view on private sector investment, Briscoe (1999), a former Senior Advisor with the World Bank, writes that the rapid shift to private sector investment improves performance, and reduces demands on public funds creating space for essential services.

Escobar (1996) reminds us that the WB has attempted, however unsuccessfully, to restructure underdeveloped societies since the 1950s. This restructuring has emerged through its export of Western development economics, its definitions of poverty, and its exporting of expert knowledge and discourses. Escobar (ibid) argues that in fact these policies and agendas have created poverty. The WB has used the definition of poverty, under a neo-liberal discourse and Western market framework, as a justification for its activities. Cornford and Matthews (2009) demonstrate how the ADB's policies in the Mekong are closely aligned to those of the WB by highlighting specific 'claimed mandates' of development. The ADB's economic transformation of the Region exacerbates the difficulties faced by the most vulnerable people, such as ethnic minorities and natural resource dependant groups. While neo-liberal agendas that champion private land rights, commercial fishing and logging, and interconnectivity, shift poor communities from their traditional areas of food security and they restrict access to the resources they depend on for their livelihoods (ibid).

Many of the MWRAS report's conclusions are open to criticisms of bias because they emphasize the benefits of hydropower based on WB and ADB hydrological modelling. According to the MWRAS strategy,

> "The development scenarios modelling exercise demonstrated that the Mekong River system has significant tolerance for development, including for hydropower and water diversion for irrigation" (MWRAS, 2006:33).

This modelling has been criticized as purposely designed to support the conclusions of the report. Adamson's (2006) study argues that the report's modelling does not consider the changes hydropower dams place on the river. The modelling ignores key environmental considerations such as sediment loads, fisheries and river ecology, water quality, the flood pulse nature of the river, and climate change issues, all of which have been shown to be vital to the Basin ecology (Kummu and Varis, 2007; Dugan et al. 2010). As Käkönen and Hirsch (2010) state, the models and data behind the statements suffer from a lack of transparency that undermines their validity and their purpose.

The claims of bias in the reports are also supported by fisheries experts in the Basin. As one expert has stated, "the models were completely inadequate for the conclusions drawn throughout the report that stated the Basin was able to handle lots of dams" (F1, 2011). The WB and the ADB used the modelling in the MWRAS as a tool to support and legitimize their policy recommendations and strategies surrounding hydropower. Through the use of expert knowledge, they have constructed and shaped the risks of hydropower to be subservient to the benefits. Dean (1999:177) states that defining risks "is a way of representing events in a certain form so they might be made governable in particular ways, with particular techniques and for particular goals." By defining the impacts of hydropower as easily governable,

the ADB and the WB are able to support their neo-liberal agendas and legitimize their own activities in the Region.

World Bank policy statements from Thailand espouse similar framing of hydropower impacts to those of the MWRAS strategy. In a 2007 statement, the World Bank explained that "Thailand is helping its neighbour make the best use of its resources" (World Bank, 2007). This statement is a political value judgement with many assumptions. It raises questions such as: does Thailand know what is best for the people and environment of Laos? Is hydropower always the best use of water? Considering that Thailand is the regional power that has a culture of supposed superiority over Laos, the assumptions underpinning this perspective on hydropower development in Laos potentially reflect the standing power asymmetries in the Basin.

Apart from being a highly influential document, the MWRAS marked an important turning point in the MRC's relationship with the ADB and the WB (Middleton, 2007). The MRC's involvement and endorsement of the report signalled a shift that it was interested in not only the management of the Mekong Basin, but its development (Hirsch, 2006). A former MRC official stated that "the MRC's involvement in the MWRAS was in response to member pressure asking for more involvement of the MRC in development projects" (MRC2, 2012). Prior to the MWRAS, both the WB and the ADB had stepped back from funding large-scale hydropower dams due in part to the findings of the World Commission on Dams Report in 2000. After construction on the Nam Theun 2 dam began in 2005, however, both the World Bank and the ADB used the MWRAS as justification to return to supporting and funding large hydropower dams. This timing coincided with investor reassurance and the stabilization of markets following the 1997-98 Asian Financial Crises. The MRC's member states were keen to follow the growth patterns of other Asian tigers (Segerstrom, 2011). In order to capitalize on the potential of water resources identified in the MWRAS, the MRC was urged by its members to focus on development projects and not just river Basin monitoring (Hirsch, 2006).

The WB and the ADB have constructed narratives supporting hydropower development around poverty alleviation and economic growth to legitimise political and economic structures within a neo-liberal development discourse in the Mekong Basin. The WB and ADB use their power and a neo-liberal development discourse to define poverty and restructure underdeveloped societies. Private-sector led hydropower is championed as a key solution to this underdevelopment. The MWRAS strategy emphasises the benefits of hydropower while downplaying its potential far reaching negative socio-ecological impacts. These narratives further allow the WB and the ADB to legitimise their agendas.

The MWRAS report also creates a new space for the the ADB and the WB within hydropower development as knowledge brokers and experts essential to the process. ADB plans include working closely with states and the private sector in the Region to develop infrastructure through the GMS Programme to facilitate hydropower development. The ADB recognizes that its funding is increasingly less appealing to states in the Region, due to its "strict environmental and social policies, which governments increasingly see as a nuisance" (ADB 1, 2010). Recent evidence of the shift away from ADB funding can be seen in the Nam Ngum 3 dam. On 18 December 2012, the ADB agreed to finance the Nam Ngum 3 dam in Laos stating that "Earnings from clean energy exports are vital to poverty reduction efforts in landlocked Laos, where one in every three people survive on less than US$ 1.25 a day," (Vientiane Times, 2012d). In July 2013, however, the dam is showing as cancelled on the ADB website and rumours around Vientiane are that Shino Hydro is now funding the project (ADB2, 2013).

The dominant narrative from the ADB and the WB, influenced by a neo-liberal development discourse is that hydropower is essential for the economies of the Lower Basin. This narrative ignores the negative impacts of hydropower and

emphasises its benefits. The ADB and WB have shaped this narrative to serve their own agendas and create new roles for themselves in the hydropower space. The ADB and WB narrative have increased the role of the private sector in hydropower development. The influx of private sector investment in hydropower was also enabled by the rapid development of the economies of the Mekong Basin over the past decade.

5.3 The State and Private Sector

Many examples of the alignment of private sector and state interests occur in developed and developing countries. They occur in industries such as defence, energy, pharmaceuticals and in food and agriculture. As outlined in Chapter 2, from the early development of the Basin to the present day, the lower riparian states have had both conflicting and harmonious interests in water resource and hydropower development. State-owned enterprises are the main actors involved in hydropower development in contemporary communist countries like Laos, China and Vietnam. As Studwell (2007) points out in his analysis of money and power in S.E. Asia, one of the ways in which powerful actors in Asia were able to amass wealth was through political connections and the collusive, non-transparent links between the state and private sector. Although state and private sector collusion is not unique to the Mekong or developing countries, the history and strength of these ties has created fertile ground for corruption (ibid).

Another key element of hydropower development has been globalization and the often-associated neo-liberal agenda that encourages private sector involvement in areas that were previously dominated by the state. As Studwell (ibid) demonstrates, the key difference between developed and developing countries is the pervasiveness, and audacity of these partnerships.

Within the riparian communist countries of the Mekong Basin there have been further changes in the relationship between states and private sectors. Laos, Vietnam and China are one party communist states, yet they have been moving towards free-market economic reforms since the late 1980s (Molle et al., 2009). These economic reforms, pushed forward by neo-liberal policies, have opened up space for private sector involvement in the electricity sector and in hydropower development. This in turn has created opportunities for public-private partnerships to be established. In Thailand, one of the main hydropower developers in the Region, these reforms have resulted in the establishment of a number of Independent Power Producers (IPPs). Despite Thailand's independent status, Thai IPPs are often partially owned by state companies. Due to the close relationship between the state and the private sector across hydropower development this requires an integrated analysis of both actors.

The statements of the aforementioned ADB official and the development of the Nam Mang 3 dam both illustrate how private sector investment in hydropower appears to be potentially more attractive to developers and states than development bank-funded projects. This outcome has three explanations. First, private sector investment is able to mobilize resources and investment quickly. In the rapidly developing Mekong Basin, the ability of governments to act quickly on opportunities is perceived as important for their growth. This demand for growth is further emphasized by a neo-liberal agenda that has pushed them to reach normative milestones characteristic of middle income countries by 2020 (Vientiane Times, 2012d).

The second explanation can be found in the ADB and the WB's extensive safeguards and investment regulations. These regulations are a result of decades of advocacy pressure to ensure that social and environmental impacts of development are adequately considered. In the Mekong Basin's regional private sector, these safeguards and regulations are often absent or significantly streamlined to suit rapid development. China, for example, operates a policy of non-interference and follows

the laws of the country it invests in with regards to hydropower (Hackley and Westhuizen, 2011). This means that Chinese investments are not required to meet the international investment laws and policies with which the ADB and WB comply.

Finally, private sector investment in Mekong hydropower development is primarily from within the Region. This regional investment may be more attractive to states business culture and in terms of potential opportunities for regional alliances and collaborations on wider trade and security related issues (Shankleman, 2009; Grumbine et al., 2012; ADB1, 2011). The modes and mechanisms of private sector investment that allows investors and developers to circumvent laws on the mitigation of Environmental and Social Impact in Laos will be explored in detail in the next chapter.

In general, within the Mekong Region, the state and the private sector often work closely together in hydropower development. This may be due to the political nature of tightly controlled communist states that require many private sector actors to be linked to and regulated by the Government.

Private sector involvement in hydropower across the Basin tends to happen in an unfettered way, attracting little attention from NGOs and the media. This may be due to the fact that NGOs and the media tend to focus on Government actions in terms of hydropower development. Although the private sector can offer funding and resources for dam construction, the state makes the ultimate decision on whether it proceeds. Nevertheless, in the Mekong, the blurred lines between the state and the private sector mean that private sector may be unduly influential on the progression of hydropower development proposals.

This section used a political ecology approach to critically examine hydropower narratives from China, Thailand and Laos to uncover the often hidden motivating and influential factors behind the policy statements. State and the private sector in the Mekong Basin construct narratives as a way to legitimise their activities and disguise their agendas. These narratives have consequences for the environment and local people because they tend to downplay the socio-ecological costs of dams. The narratives also demonstrate the shifting roles of actors within the Basin's hydropower development.

In many of the Mekong countries, there is very little transparency in both the activities of the state and the private sector. Hydropower development is especially opaque because of the political nature of water management and the large cost and potential impacts of dams. Although transparency in private sector activities is an issue in many parts of the world, in the Mekong Basin, the private sector is arguably less open to public scrutiny. This is due to a number of contributing factors, including the weakness of civil society, a lack of transparency and accountability and the tightly controlled nature of the state. These mechanisms will be further explored in Chapter 6. Due to the non-transparent nature of hydropower development, narratives are examined through the state-controlled press and in official reports. These are then analysed within the broader political and economic structures to search for their hidden agendas.

5.3.1 China

As highlighted in Chapter 2, China is the largest and most powerful actor in the Mekong Basin with five existing dams on the Upper Mekong mainstream and three planned. China is involved in the Mekong Basin hydropower in two important ways: in

its development of the Lancang cascade as discussed in Chapter 2, and in its increasing involvement in the hydropower development and funding in the Lower Basin.

China is currently the world leader in hydropower construction. In its 12th Five-year Plan (2011-15), it announced its intentions to develop eight hydropower zones with over 60 large-scale hydropower projects bringing the total installed capacity of hydropower within the country to 284 GW (CBI, 2012). China's hydropower development, however, is not confined to its borders. State-owned hydropower companies such as Sinohydro Corp., Lancang Hydro and Dongfang Electric Corp. (all financed by Chinese banks) are constructing approximately 300 projects in 72 countries worldwide, with over 30 in the Mekong Basin (Macdonald et al., 2009).

China has employed a number of domestic and regional narratives over the past three decades to legitimize and drive its political and economic agendas in the Basin. The domestic narrative of hydropower emphasizes it as a modernizing development with little or no costs. For example, policy statements surrounding the transfer of electricity west from Yunnan were part of China's policy to "open up and develop the backward people of Western China" (Magee, 2004:24). Other statements included referring to hydropower in Western China as "opening the door to prosperity" (Q. Chen, Liu Liu, and Ying Zhang, 2005 cited in Magee, 2004). Chinese power company document titles from this period, e.g. "Send Western Electricity East bears a strong soldier" or constructing an "electricity mother ship", highlight conceptions of Chinese ingenuity and domination over nature through hydropower development (Henan Province Electric Power co. 2004 cited in Magee, 2004). These statements demonstrate a development discourse of water and ecosystems as resources that need to be utilised and controlled to provide benefits. This discourse is similar to the neo-liberal hydropower narratives promoted by the Mekong Committee in the 1970s and 1980s (see Chapter, 2). The use of these narratives by hydropower companies

also signifies the shifting role from state-led to private sector led hydropower development.

In early 2000, policy statements from China promoting hydropower development designed for international audiences began to increase. These statements coincided with China's construction of dams on the Upper Mekong mainstream. They marked a shift away from the focus on modernization and domination to one of hydropower's benefits. An article published in China's Xinhua news agency (2002) quotes an official Chinese hydropower expert on dam construction on the Lancang[5], "Establishment of the power station will benefit all countries along the river…[and] the experience of building power stations on international rivers has proved that they exert no negative influences on the environment" (Xinhua news, 2002). These early Mekong Basin narratives appear to be mainly directed towards international concerns about China's mainstream hydropower ambitions and the potential transboundary impacts of these dams.

Chinese international and domestic policy statements surrounding hydropower speak to a particular neo-liberal development discourse prevalent in China, S.E. Asia and much of the rest of the world. They emphasize hydropower as modern and essential for electricity to power economic development. They further coincide with the educational background of many of China's top politicians. Hu Jintao, President of P.R. China and former Chairman of the Communist Party of China is a graduate of Tsinghua University's Water Conservancy Engineering Department. A number of other members of the Politburo are water engineers. It follows that the leadership of China would be naturally inclined towards engineering-led development in water resource management, of which hydropower would be a key component.

[5] The Mekong River is known as the Lancang within China.

Chinese policy statements are unequivocal in terms of the positive outcomes of hydropower development, going so far as to declare that hydropower will have no environmental and social impacts. These views demonstrate an indifference to or a deliberate rejection of hydropower's proven environmental and social impacts and a complete disregard for science. Studies show that China's cascade of dams on the Lancang will impede vital sediment flows, reduce water levels by as much as 30% during the rainy season and could impact rivers and the environment as far as Vientiane, the capital of Laos. Increases in salinity intrusion in the delta, for instance, can seriously impact fisheries in both Thailand and Laos (He et al., 2006; Kummu and Varis, 2007; Räsänen et al., 2012; etc.). By ignoring these studies, the Chinese Government evinces a desire to control the narrative of hydropower development, using its political power to cast hydropower in a light that suits its policy agendas and international and domestic strategies.

Although Chinese foreign policy previously revolved around the position that "whatever action China takes to exploit the Mekong's potential is purely an internal matter", it has now begun to move away from these unilateralist positions (Dupont, 2001:129). Since 2000, following the development of the mainstream dams and its increasingly ambitious domestic and regional hydropower plans, China has couched its rigid policy stance in 'peace' rhetoric, highlighting the 'win-win' outcomes for downstream riparian states. Although China still rarely discusses the negative impacts of dams it is more communicative with the Lower Basin states. Liebman (2005) argues that in communicating with the Lower Basin, China has used a number of pious statements that frame the benefits of hydropower as being shared so as to avoid appearances of being a hegemon within the Region.

Examples of this position can be seen in Chinese political speeches. During a speech at the MRC in 2010, H.E. Song Tao, Vice Minister of Foreign Affairs of the People's Republic of China stated that "hydropower development of the Lancang River can improve navigation conditions and help with flood prevention, drought relief and

farmland irrigation of the lower reaches" and that the development would include "equal consultation, stronger cooperation, mutual benefit and common development" (MRC, 2010c). The speech made no mention of potential negative impacts or how they would be mitigated.

The narrative that China is 'helping its neighbours' and that hydropower will 'benefit everyone' in the Basin is further emphasized in the National Development and Reform commission's Country Report on *China's Participation in Greater Mekong Sub-region Cooperation* (Xihuan, 2008). From the outset, the executive summary of this report constructs and directs the narrative of 'win-win' with the following statement:

> "China is willing to work with the other GMS countries to bring GMS cooperation to an ever greater depth, so as to speed up infrastructure construction, push forward facilitation and liberation of trade and investment, and try to realize regional interconnection in the GMS; to boost ability building and mutual exchanges [sic], strengthen the integral competitiveness, promote the overall economic and social development, and raise the living standards of the people of the Region; further consolidate and develop China's traditional relationships with the other GMS countries and jointly create a regional environment characterized by peace and stability, mutual trust, and win-win cooperation. " (Xihuan, 2008)

These 'win-win' narratives can also be found in the English version of the People's Daily, the official Chinese online newspaper. An article entitled *What to do after becoming a big power* (People's Daily, 2004) discusses how other ASEAN countries can "have a share of the benefit from China's rise" and that the benefits of China's dams will include flood control and will even help water use and drought downstream by storing water during the flood season and releasing it during the dry season (People's Daily, 2004).

Attempts by China to frame hydropower as beneficial to all reflect more than a desire not to appear as the hegemon. This narrative hides a regional agenda of state-owned enterprises (SOE) to develop economic ties with the Lower Basin and to serve security energy reserves for the growing Chinese economy. Following the increasing use of the narrative that promotes hydropower as a 'win-win', China's role as a funder and developer of tributary dams in the Mekong Basin in Laos and Cambodia has increased significantly (Middleton, 2008). The distribution of large-scale Chinese dams in the Region is as follows: Myanmar 30, Laos 13, Cambodia seven and Vietnam 3 (Urban et al., 2009). These projects are financed, developed, constructed, and contracted out primarily to Chinese SOEs. The increase in hydropower development has also followed a rapid rise in Chinese investment in the Basin.

Between 2003 and 2008, Chinese trade with S.E. Asia more than tripled (Moore, 2009). On a country-by-country basis, the value of trade with China in 2010 came to $46.0 billion for Thailand, $27.3 billion for Vietnam, $4.7 billion for Myanmar, $1.3 billion for Cambodia, and $1 billion for Laos. China is the largest trading partner for Myanmar, Vietnam, and Laos, and is Thailand's second largest, and Cambodia's third (Gronholt-Pederson, 2013; Chen Y.W., 2012; Heng, 2012). China is currently Cambodia's largest aid donor and foreign investor and has built much of its infrastructure. Furthermore, China's aid programs to Laos, Cambodia, and Myanmar are currently greater than those of the U.S. (Kurlantzick, 2007). In order to paint a clear picture of China's influence on Lower Mekong Basin trade, aid and investment must be viewed as a package, rather than as separate initiatives. Urban et al., (2009:312) describe how these elements are packaged together:

> "The Chinese practice is hence often to bundle aid, trade and investment by providing, for example, both investments and concessional loans for dam building and linking this to the export of electricity coupled with the import of Chinese manufactured goods and trade deals for Chinese firms."

The spread of Chinese investment into the Lower Mekong Basin is important for China's energy security. In terms of hydropower, Lower Mekong Basin development offers more benefits to China's energy security when compared to dam building projects abroad. One of the crucial differences between Chinese hydropower development in the LMB and projects in Africa or South America is connectivity to China's electricity grid. The close proximity of the Lower Mekong Basin allows for electricity to be imported into China's rapidly growing urban centres (Urban et al., 2009). Energy security is a major concern for Chinese decision-makers, who have set a goal of having 15% of the energy portfolio to come from non-fossil fuels by 2015, of which half is planned to come from hydropower (CEP, 2012). These aggressive energy goals outlined in the 12th Five-Year Plan (2011-15) have spurred a flurry of large dam construction and cascade projects in China and regionally.

The political ecology analysis shows that Chinese Government uses the narrative of hydropower as 'win-win' with little environmental or social negative impacts as a tool to disguise China's political and economic agendas in the region. Lower Mekong Basin hydropower development is important to the growth of Chinese state-owned enterprises and China's broader energy security. These narratives also hide the environmental and social costs of dams. In this way, narratives not only disguise growth they also shape the way hydropower is developed in the Basin. Thailand also uses narratives surrounding hydropower development to mask political and economic agendas and shape how hydropower is built.

5.3.2 Thailand

Thai state interests in hydropower are expressed through activities of the state-owned EGAT. EGAT uses narratives to entrench its power and shape the way dams

are built in neighbouring countries. Hydropower development is justified by the securitization of energy and policy statements that frame hydropower as a win-win.

EGAT has a monopoly over electricity generation and distribution within Thailand, and actively invests in hydropower and natural gas projects in its neighbouring countries of Laos and Burma (Wisuttisak, 2012a). Despite EGAT's considerable power and influence over state and private energy investments, strong civil society opposition to domestic hydropower has also shaped Thai energy policy outside and within the country.

As stated in Chapter 2, from 1960 to 1990, Thai state energy policies focused on domestic hydropower projects. As a consequence of the unpopularity of the Pak Mun Dam, however, domestic hydropower became politically unrealistic from the late 1990s (Hirsch, 1995). According to the Thai EPPO, existing potential for hydropower in Thailand is 15,155 MW with only 3,438 MW of installed capacity (EPPO, 2010 cited in Sawangphol and Pharino, 2011). Despite this latent hydropower potential there are currently no plans to develop any large-scale hydropower dams in Thailand. Thai civil society has been successful in ensuring that Thailand's energy policies do not adversely impact on Thai natural resources and local people (Sukkumnoed et al., 2006; Foran, 2006).

With hydropower a politically sensitive issue in Thailand, EGAT and Thai IPPs have used policy statements to justify hydropower investment in neighbouring countries where they do not encounter civil society opposition (Matthews, 2012). These investments and their potential profits have created opportunities for new actors to emerge in hydropower development. Thai banks and construction companies are increasingly active in hydropower development in Laos (Middleton et al., 2009). The monopolistic structure of the Thai energy sector combined with the potential profits available from hydropower development have contributed to Memoranda of

Understandings on power purchases being signed with Laos for 7000 MW by 2015. The majority of this supply comes from hydropower. As of 2011, Laos hydropower projects were supplying approximately 1450 MW (Foran et al., 2010b; Cruz-del Rosario, 2011).

Narratives from the Thai state and EGAT are less common than in other countries. This may be due to the negative image of domestic hydropower. Nevertheless, they do occasionally emerge. In 2005, the governor of EGAT, Sitthiporn Ratanopas, described the Mekong Basin's power development plans and hydropower generation as a "win-win game for everyone" (The Nation, 2005). In 2007, the Thai Minister of Energy, Piyasvasti Amranand stated that "Hydro-projects in Laos have shown the world that hydro-projects can be environmentally-friendly" (The Nation, 2007). Like China, Thailand constructs a hydropower narrative that positions hydropower as both essential to the Thai economy and having little or no environmental impacts. This narrative allows EGAT and the Thai private sector to justify its investments and profit from development and externalise the costs of development in neighbouring countries, such as Laos.

Thai narratives are largely driven by EGATs dual role as both supplier and distributor of electricity and the power this dual role gives it in the Thai state. EGAT's dual role gives it a vested interest in high energy demand, which ultimately drives hydropower investment and development. EGAT's vested interest has resulted in a number of policy positions to justify hydropower investment and development. Thailand's hydropower investments in the Basin are often labelled as an important component of Thailand's sustained growth and energy security. For example, Thailand's power Development Plans (PDP), which forecast the country's power growth, securitizes energy supply, and states that extensive investment in renewables (primarily hydropower) is needed to meet future electricity demands (Greacen and Greacen, 2012).

Greacen and Greacen (2012) argue that hydropower narrative and supporting policy statements from EGAT are constructed for the purpose of profiteering and accumulating power. Greacen and Greacen's extensive analysis of the Thai energy sector illustrates how, from 1992 to 2007, EGAT's Power Development Plan over-projected demand 12 years in a row (Greacen and Palettu, 2007: Greacen and Greacen, 2012). By over-projecting demand, EGAT is able to justify further investments in hydropower development. This 'overstating narrative' at the same time emphasizes the need and benefit of hydropower, justifying and enhancing EGAT's rise in Thai political power and resulting in positive political and economic outcomes.

Cheap power for consumers and industry is important for the success of political parties. In Thailand, electric power has been at the centre of national politics for the last three decades and continues to play a prominent role. Over the past 30 years, Thailand's annual electricity demand has grown by 3-7% (Jarvis, 2010). Much of this growth has been spurred by Government policies to scale up investments in the industrial sector and by the growing consumption of electronic goods by increasingly affluent households. Thailand currently relies on natural gas to supply 70% of its electricity demand (Energy Policy and Planning Office (EPPO), 2007). With approximately 30 years of supply left, hydropower is increasingly prioritized by EGAT as an essential source to meet this demand and provide a clean source of renewable energy. At the same time, EGAT has ignored calls for electricity saving plans which do not offer potential profits or increased influence (Greacen and Greacen, 2012).

Since 1969, EGAT has been responsible for all electricity transmission and the majority of electricity production in Thailand. EGAT has striven to remain the top player in the Thai energy sector keeping its dominant bureaucratic control despite decades of political challenges and privatisation reform.

In the 1970s and 1980s, EGAT struggled under massive costs and burgeoning debt. A series of reforms were proposed as part of International Monetary Fund (IMF) and World Bank conditional structural adjustment loans. These reforms included calls for the privatisation of EGAT, and the introduction of privately operated IPPs (Wisuttisak, 2012b). In spite of the implementation of these reforms, the enterprise remained state-owned.

In fact, these initial reforms resulted in very little real change in the power structure within the Thai energy sector. EGAT entrenched its position by purchasing significant interests in many of the emerging IPPs. For example, EGAT currently owns a 45% share in Ratchaburi Electricity Generating Holding Public Company Limited (RATCH) and a 25.5% share in Electricity Generating Public Company Limited (EGCO) the country's two largest IPPs (EGAT, 2009). Furthermore, many IPP board members were former EGAT employees. The IPP model in Thailand exists in name, but not in practice. In reality, EGAT and the IPPs are closer to a public-private partnership with the Thai state wielding considerable influence (Wisuttisak, 2012b).

Instigated by the Asian Financial Crisis of 1997, the IMF initiated a bailout package for Thailand. Once again, the IMF, pushing a neo-liberal agenda, called for major reforms to the Thai electricity sector including regulation and a stronger move towards privatisation. These reforms were met with staunch resistance by EGAT and much of the Thai population. Consumers feared increasing prices, unionists feared job losses, and nationalists feared foreign ownership. The unpopularity of these reforms and the weak state of the economy paved the way for political change. With the election of populist Prime Minister Thaksin Shinawatra, privatisation reforms were halted and EGAT became a 'national champion', a protected state-owned company, regaining the full political backing it had once enjoyed and further solidifying its influential position in Thai politics (Chirarattananon and Nirukkanaporn, 2006; Wattana et al., 2008).

Calls for electricity sector reform were once again prioritized after a 2006 military coup overthrew Prime Minister Thaksin Shinawatra. EGAT lost its status as a national institution and it appeared that regulation and increased privatisation were inevitable (Wisuttisak, 2012a). In 2007, the Energy Industry Act was implemented and established the Energy Regulatory Commission (ERC) (ibid). The ERC's mandate was to independently regulate the energy sector and provide a check to EGATs dominance. In reality, little has changed since 2007, in part due to political instability in the country and the institutional entrenchment of EGAT holding the reins of power for over 30 years (Wattana et al., 2008; Wisuttisak, 2012a, 2012b). With the 2011 election of populist Prime Minister Yinluck Shinawatra (Thaksin's sister) EGAT's influence and power appears to be continuing to expand.

In the case of Thailand, the neo-liberal agenda of private sector investment and reform has been staunchly resisted by EGAT. EGAT has been able to protect its power within the Thai state by controlling reforms and using narratives to justify its invesments. EGAT has further been able to control private sector investment in hydropower through its domination of Thai IPPs.

EGAT's power to shape Thailand's hydropower strategies in neighbouring countries has also been driven by the public-private nature of the IPP model. EGAT faces a conflict of interest in that it desires low-cost electricity but also aims to bolster the profits of the IPPs, of which it is a shareholder. As EGAT has interests in the IPPs, it can encourage them to use their capital as its own development arm. Many of the IPPs in Thailand are signalling their desire to acquire companies abroad in South-East Asia (Wood, 2010; G2, 2012). These investments have many advantages for EGAT. They pass the risks and administration associated with complex hydropower projects to the IPPs. If the investments are successful they increase boost their share prices thereby increasing EGAT's profits. They also dilute investments away from the Thai

state to the private sector thereby decreasing potential regulatory hurdles that may be placed on EGAT investing in Laos.

The political ecology analysis shows that EGAT is able to use narratives emphasising the importance of hydropower as a tool to entrench its power within the Thai state and avoid reforms. As discussed above in China, these narratives are not only used as tools to hide political and economic agendas, they also shape the way dams are built.

IPP's and EGAT's focus on the provision of cheap electricity and the construction of dams to increase profits have shaped the type of dams that are built in Laos. The focus on profits and energy production has led to the construction of dams that have a singular purpose of power generation instead of incorporating multi-use benefits (PS1, 2012). Hydropower dams can be constructed to integrate a number of non-electricity benefits including irrigation, sediment transfer, and reservoirs that provide habitats for fish and can be used as man-made lakes. As stated by a former employee at the Theun Hinboun Expansion Project:

> "I pushed for a multi-purpose dam that incorporated irrigation, but I was told by the developers that hydropower can generate ten times the earning potential of irrigation, so it would be better to use the money generated from hydropower to help farmers... The problem is that the money generated from hydropower never reaches the farmers." (IN1, 2012).

A 2002 ADB report on lessons learned from large dams in the Mekong Basin reinforces the statement from the Theun Hinboun senior manager. The report states that the "operation of Nam Ngum1 was initially aimed at meeting various national demands, but that approach was later changed to maximize the power benefits" (ADB, 2002:111). Exact numbers are difficult to obtain, but it is estimated that over 90% of the large dams constructed in the Mekong Basin are solely focused on power

generation (G1, 2011; MRC, 2012). The ADB and the WB continue to support the development of these single-purpose dams despite the same report stating that:

> "the 'lessons learned' from the four case studies and the review of international literature shows clearly that the era of single-purpose dams, common before about 1970, is essentially over. Henceforth, planning for all new large dams will have to give in-depth attention to multi-purpose needs." (ADB, 2002:111).

Furthermore, post-construction modifications of the hydro to allow irrigation or other multiple uses are generally considered unfeasible. EGAT's use of narratives to justify policy statements has also allowed new actors to enter into hydropower development.

Over the past five years, the Thai private sector has increasingly been involved in dam construction and financing (Middleton, 2008). Ch. Karnchang Public Company, a Thai construction company, is leading the construction of the Xayaburi and Nam Ngum 2 dams. The construction of the Xayaburi dam has already significantly benefited the company with its stock price reaching a six year high on 7 December 2012, a month after the dam's official ground breaking ceremony (Reuters, 2012). Moreover, the four Thai banks are financing the construction of the $3.8 billion dollar project - The Bangkok Bank, Kasikorn Bank, Krung Thai Bank, and Siam Commercial Bank - had not previously been involved in hydropower financing. Clearly, the private sector in Thailand is being enticed by the high potential returns on investment in hydropower projects. Chapter 6 will show how these returns are enhanced by an enabling environment in Laos that allows developers to maximize profits by circumventing laws and policies in the country designed to mitigate social and environmental impacts.

The Thai state, through EGAT promotes a narrative of hydropower as essential to the future security of Thailand's economic growth. EGAT's entrenched power is a result of its ability to resist neo-liberal reforms during the 1990s. The narrative EGAT uses to promote hydropower and secure its own political power downplays any potential costs of development. The narrative not only serves EGAT's political and economic agenda in Thailand, it creates space for new actors to profit from hydropower development in neighbouring countries and further shapes the way dams are built.

Although Laos is downstream of China and Thailand and stands to bear many environmental and social costs of hydropower development within its borders, the Government of Laos (GoL) follows the neo-liberal agenda pushed by the WB and the ADB to welcome the development of its water resources.

5.3.3 Laos

Hydropower development has been a key focus of the policy agenda in Laos for the past 35 years. As mentioned above, since the 1980s the WB and the ADB have promoted hydropower development as a vital step for Laos to move out of poverty and reach middle income status. Up until the 1990s, regional instability resulted in relatively few hydropower projects coming online in Laos. As discussed in Chapter 2, the environment for developing hydropower changed rapidly after the 1990s with the introduction of private sector investment and a more stable political climate. In communist Laos, Electricité du Laos, the state-owned electricity provider and producer, supported a narrative and policy agenda similar to Thailand and China, one that emphasized the benefits of hydropower development while downplaying its environmental and social impacts. The narrative of hydropower in Laos hides an agenda of political and economic power similar to China and Thailand. Laos' welcoming of the WB and ADB's neo-liberal development discourse has also shifted the roles of actors supporting hydropower in the state.

Policy positions and strategic directions surrounding hydropower in Laos have been heavily influenced by a neo-liberal agenda promoted by the WB, the ADB, China, and Thailand. The main narrative emerging from Laos is that hydropower development is essential for the country's development, poverty alleviation, and its emergence onto the global scene. Although Laos' policy statements contain elements similar to those of Thailand and China, they tend to revolve around three specific and often interlinked themes: the first is Laos' potential to develop hydropower and its willingness to attract investment; the second is the importance of hydropower to economic growth and poverty alleviation; while the third theme de-emphasizes hydropower's environmental impacts.

The first strategic theme is a result of neo-liberal influences from the WB and ADB (Kaisti and Käkönen, 2012). This influence has led to the creation of policy statements from the Laos government that demonstrate Laos' openness to development and investment. This theme underpins Laos' desire to become "the battery of S.E. Asia" (Bardacke, 1998) and, more recently, supports Laos' plans "to become the battery of ASEAN, as it has abundant water supplies and mountainous terrain suited to hydropower development" (Vientiane Times Online, 29 August 2012).

Hydropower investment in Laos has been primarily regional and led by Thai, Chinese, and Vietnamese developers and banks. It is difficult to determine the exact amount of foreign investment coming into the country (particularly investment in the hydropower sector). According to the GoL's 7th National Socio-Economic Development Plan from 2011 to 2015, however, Laos is seeking to attract $7 to 8 billion in foreign and private investment (GoL, 2011). Considering the importance of hydropower to the country's development strategy, it is reasonable to assume that hydropower represents a large portion of this investment.

The GoL repeatedly emphasizes its hydropower potential as an important component of attracting developers and investment. Examples include statements from the Laos' Deputy Prime Minister stressing "the development potential of Lao hydropower thanks to an abundance of rivers and streams in the country" (Vientiane Time Online, 2012b). The influence of a neo-liberal agenda promoting hydropower development as a key solution to Laos' economic development continues in ignorance of the fact that the country may not be well suited to hydropower development.

On paper, Laos appears to be an ideal location for hydropower development. Its dozens of rivers are located in mountainous areas with a heavy and consistent monsoon. The geology of the country, however, is in fact not well suited to hydropower. Laos' mountainous areas are dominated by karst limestone, a soluble and porous rock known for its inability to retain water. As one leading consultant stated, "Laos hydropower potential appears excellent, but once you look carefully into the geology of the country, a number of the proposed dam sites are not feasible or simply dangerous" (PS3, 2011).

Another important aspect to consider in assessing the suitability of Laos' hydropower is the potential impact of sediments to dams. The Mekong River and its tributaries move as much as 1000 tonnes per kilometre of sediment through the Basin each year (Wang et al., 2010). Sediments can be detrimental to dam developers. Dams are highly efficient at trapping sediment and an overload of sediment can reduce their lifespan by filling reservoirs and damaging turbines. Studies on the Mekong have shown that dams on its tributaries and the mainstream could trap up to 50% of its sediment loads (ICEM, 2010: 77; Kummu et al., 2010). Consultants working on EIAs in the Region have admitted that these sediment loads are not factored into hydropower construction. According to a senior EIA consultant:

> "The Mekong and its tributaries are so heavily laden with sediment that dams constructed will have significantly shorter life spans than the EIAs and

> planning documents declare. This sediment will greatly reduce the power they can generate, thereby impacting their financial viability" (PS4, 2011).

Sediments are also important to the ecosystems, hydrology, and agriculture of the Basin. They transport nutrients and toxins through the Basin, providing food for fish, and rejuvenating fields (Morris and Fan, 1998). Changes in sediment load and flow can be especially detrimental to coastal and offshore zones, increasing saline intrusion, and irreversibly damaging crops (MRC, 2011; MRC, 2009).

The second theme used to promote hydropower development in Laos revolves around its need to reduce poverty in the country through economic growth. This theme is also influenced by a neo-liberal led development discourse that promotes natural resource development as a way to reduce poverty. These policy statements ignore or downplay the environmental impact of dams. Examples of this theme are seen in the following three quotes from the state run newspaper:

> "Over the past five years, Laos has maintained an economic growth rate above 7.5%. The Government plans to maintain this rate at a minimum of 8% over the next five years, with mining and hydropower as the main drivers of growth" (Vientiane Times Online, 13 July 2012).
>
> and
>
> "The Government has a clear policy to attract foreign investment for hydropower to Laos and generate jobs for Lao people as a way to free Laos from the UN's list of least developed countries by 2020" (Vientiane Times Online, 9 October 2012).
>
> and

In an article entitled "Please give us a chance to rise above poverty":

> "Laos is one of the least developed countries in Asia but its people never stop thinking about how they can change this situation. Today we are discovering that hydropower is one of the keys to graduating from the UN's list of least developed countries by 2020, thanks to the abundance of rivers and mountainous land. These natural assets provide us with the essential ingredients for creating wealth by building dams" (Vientiane Times Online, 27 November 2012).

Policy statements associating hydropower development with economic growth have been especially prevalent in the Vientiane Times since 2010. These narratives emerge in spite of controversy and criticism surrounding the environmental and social impacts of a number of large-scale dams in the country including the NT2, the Theun Hinboun Expansion Project, and the Xayaburi.

These policy positions, however, are not unfounded. The NT2 hydropower plant contributes approximately $50-100 million per year, or 3% of projected Government revenues (WB 2004). Stone (2011) states that if all the proposed mainstream dams in Laos are constructed they could generate an estimated $25 billion in foreign direct investment and 70% of electricity export revenues, or $2.6 billion a year.

The third and final set of policy statements that appear in the Vientiane Times (which is the main Government mouthpiece), are those that downplay the potential environmental impacts of hydropower dams or frame hydropower as a green renewable energy. These statements tend to disregard expert studies that show hydropower development's significant environmental impacts.

The narrative that describes hydropower as a 'green energy' has been increasingly employed by pro-hydropower actors as global concerns about the impact of fossil

fuels on climate change increase (Pittock 2010; Matthews et al. 2012). The green hydropower narrative has been supported by the WB and the European Union among other international organizations. The World Bank's support of hydropower in Laos is aligned with the Bank's aim of reducing fossil fuel emissions. In response to this, Laos is now rebranding itself as a "green and low-carbon battery" (Kaisti and Käkönen, 2012: 11). The World Bank's strategy in the Region from 2007 further states that large-scale hydropower "maximizes environmental benefits through the displacement of fossil fuel thermal generation with renewable energy" (WB 2007, p.xv). Aligning with the WB's view on the matter, the charge d'affaires of the European Union Delegation to Laos, Michel Goffin, stated that hydropower development is environmentally-friendly and that Laos has huge potential to develop hydropower (The Nation, 2013).

The green hydropower theme is further supported by statements from the GoL that explain how "a run-of-river dam has the advantage that outflow equals inflow so there is less impact on the environment and the lifestyle of people who live along the river." (Vientiane Times Online, 30 October 2012b) and that "Laos will look at developing its green energy sector – particularly hydropower – to meet current and future demands" (Vientiane Times Online, 2 November 2012c).

Studies have shown that, over the life of a project, hydropower can emit less greenhouse gasses than coal-fired plants or natural gas (Barros et al., 2011). Recent research on tropical Basins, including specific research on the Mekong, suggests that dams are not as environmentally-friendly as once suggested. The energy and material used in the construction of large hydropower structures contributes significantly to greenhouse gas emissions. Furthermore, anaerobic decomposition of flooded biomass in subtropical and tropical Basins releases substantial amounts of methane, actually increasing emissions and contributing to climate change (Chanudet et al., 2011).

The policy positions employed by the GoL to promote hydropower development in the Basin are part of a three-pronged strategy by the Government. First, through emphasizing Laos' hydropower potential and its openness to investment; Second, by underscoring the importance of hydropower to Laos' poverty alleviation and third by emphasizing hydropower as a green energy with little or no environmental or social impacts.

The political ecology analysis demonstrates that the policy statements promoted by the GoL hide a number of agendas and political and economic influences. The neo-liberal discourse has defined Laos as a least developed country and promoted hydropower as a solution to move the country out of poverty. This discourse has encouraged the GoL to open its doors to private sector investment creating opportunities for new actors from the private sector in Thailand and China to 'help' Laos move out of poverty and 'make the best use of its water resources.' The WB and the ADB have also used narratives and the influence of the neo-liberal development discourse to reinvent their role and activities within Laos' hydropower development space. Finally, the emphasis by the GoL on hydropower as clean energy with little or no environmental impacts creates little incentive for hydropower developers to mitigate the costs of development. As will be discussed in Chapter 6, the GoL is also able to significantly benefit from the rapid hydropower development within its borders through the use of meso-scale political and economic mechanisms that lend it power. Finally, by aligning policy statements around internationally-agreed norms of 'poverty alleviation' and 'climate change alleviation', the GoL is not only legitimizing the WB, ADB, and neighbouring countries' strategies and agendas in the Region, but also delegitimizing any criticism it receives.

5.4 Conclusion

Narratives are more than a disagreement about knowledge and perceived value of development. They embed organizing frameworks that contribute to the establishment of motivations and inspire political and economic agendas. Actors frame narratives within geographical scales that emphasize particular benefits or impacts while downplaying others (See Figure 5-1). Narratives are used to support and camouflage political and economic interventions and geopolitical strategies; they also create space for new actors and shape the way hydropower is built.

Political ecology helps to illuminate the ways in which power, politics and economics influence the construction of narratives. Forsyth and Walker (2008:228) suggest that "a more politicized account of how environmental knowledge is formed is necessary before assuming that it provides an accurate basis for explaining environmental problems or for indicating appropriate regulatory responses". In the contested space of Mekong Basin hydropower development, it is necessary to analyse the politics behind the formation of policy statements and narratives.

Historically, hydropower narratives were influenced by outside actors involved in the early development of the Basin. The Army Corps of Engineers and the Bureau of Reclamation, who were active in the Mekong in the 1950s, exported a discourse of hydropower as essential to the Region's development (Baghel and Nusser, 2010). To meet these Western development objectives, foreign investment in state hydropower was encouraged by ESCAFE and the UN from the 1950s and advanced by the WB and the ADB to the present day.

A strong neo-liberal development development discourse has emerged through WB and ADB policies. These policies support private sector investment in hydropower as a valuable means to bring economic development to the Basin and to reduce poverty. In order to reassert themselves in the hydropower development space, the ADB and the WB have used this discourse and their own narrative surrounding hydropower

development to reinvent themselves as knowledge experts able to assist with the complex laws, regulations, contracts, economic modelling, and infrastructure that this development requires.

Over the last decade, the investment environment has shifted to regional developers and financiers. These new investors espouse similar neo-liberal views of hydropower as a requirement of a modern, industrial society (Rist, 2002). The regional actors also use these discourses and narratives to obscure their political and economic strategies.

China's narrative frames hydropower as a 'win-win' approach which helps to legitimize its geopolitical strategy in the Basin. Policy statements that emphasize its peaceful rise help to defuse its image as a hegemon and reassure international and domestic states that it has only the best of intentions. The narrative that posits that its upstream dams reduce flooding illustrates how China acts 'in the best interest' of the Basin. In reality, however, China's construction of dams on the Lancang gives it considerable power over the water resources within the Basin. At the same time, Chinese interests downstream are extremely profitable for Chinese companies, creating jobs, investment opportunities, and economic ties, while also generating energy for its own growing industry and population.

In the case of Thailand, the Government and EGAT present hydropower development in Laos as essential for Thailand's energy security and future growth while acting 'in the best interest' of its neighbour, Laos. By securitizing hydropower and delineating it as essential for the future of Thailand, the state and EGAT frame these developments and their impacts as necessary and fundamental. In reality, EGAT's monopoly and power within Thailand allows hydropower to be used as a tool to empower EGAT, numerous IPPs and the Thai private sector. The hydropower narrative from EGAT has also shaped the way dams are built in Laos. The narrative of hydropower as essential

for electricity security creates dams that are solely focused on energy provision, disregarding their potential multiple uses.

The GoL promotes hydropower as the only solution to poverty alleviation. Paradoxically for a Marxist entity, the GoL deems economic growth as the only way to poverty alleviation. This narrative places environmental and social impacts as necessary outcomes, although in most cases these are downplayed or dismissed. By stating that hydropower is a 'clean' energy and is essential for poverty reduction, the Government uses internationally accepted priorities such as climate change and poverty alleviation to legitimize its decisions. The narratives from the GoL open up space and opportunities for Thai and Chinese investors to profit from Laos hydropower development. The narrative from the GoL's that hydropower creates little or no social and environmental impact further dis-incentivises developers from mitigating the impacts of development.

In analysing narratives and their construction, it is also important to consider the role of the media. Although many of the Basin states exert some degree of state influence on the press, the media themselves also play an active role in polarizing narratives. Policy statements from key actors are often picked up by media to emphasize conflict in the Region. According to a *Bangkok Post* reporter, the media "look for statements with colour that emphasize the different positions around a story" (M1, 2012). These polarizing narratives often create a battleground around hydropower development. While they may help to sell stories, they can intensify the debate and encourage a lack of transparency in decision-making and development.

Although the political ecology analysis of policy statements and narratives provides useful insights into the actors and influencing factors driving agendas, narratives, and discourses in the Region, a more holistic analysis is required in order to fully illustrate the drivers and enablers of hydropower development. The next chapter will examine

the mechanisms within Laos that drive these narratives and allow the GoL to benefit from hydropower development in ways that creates significant negative impacts for local people and the environment.

6 Mechanisms and Structures and their Impact on Hydropower Development in Laos

6.1 Introduction

The previous chapter demonstrated how actors in the Basin construct narratives as political and economic tools to legitimize their decisions and their hydropower development activities. These frames and narratives were shown to influence the hydropower development process. The previous chapter further demonstrated that the phase of hydropower development up to 1990s, led by multilateral banks, has shifted with actors taking on new roles. For example, the World Bank (WB) and the Asian Development Bank (ADB) have used the hydropower narrative to create a new role for themselves in the hydropower space as a primarily supporting and knowledge-development organisation. This new phase of development can be linked to historical discourses that emerged in the Basin in the 1950s.

One main research question guides the analysis in this chapter. What are the key institutional structures and mechanisms at the national and regional basin scale that have empowered certain actors over others in the Impact Assessment process, project approval and construction of hydropower development projects?

It is hypothesized that meso-scale mechanisms such as a lack of accountability compounded by weak civil society, poor transparency and a tightly controlled press shape the way hydropower is built and the way it addresses its social and environmental impacts. These mechanisms enable alliances between state and market forces to profit disproportionately from hydropower development. These alliances are further enabled by manufactured consent among the INGO sector.

This chapter will use a political ecology approach to examine the meso-scale political and economic mechanisms within Laos that have enabled some hydropower development to proceed while ignoring its social and environmental costs. Mechanisms help to illuminate key processes, asking "what produces change, what makes things happen and what allows or forces change" (Sayer, 1985:161). For the purpose of this research, mechanisms are analysed in the social, political and economic contexts in which they operate. Sayer (ibid) argues that actors derive power from and act according to the structures in which they are situated.

In Laos, powerful actors involved in hydropower development have derived power from the social and political structure of the tightly controlled autocratic state. The lack of transparency and weak accountability that has existed within Laos has created and shaped the types of institutional behaviours that have emerged in hydropower development. Furthermore, these meso-scale mechanisms have influenced the space in which civil society has operated. Consent has been manufactured in the INGO sector through tight Government controls of civil society and in a context where the press does not enjoy freedom. These conditions in turn have created opportunities for powerful actors to disregard ecosystems and prioritize profit taking.

Political ecology posits that mechanisms create boundaries of inclusion and exclusion within institutional contexts (Lawson and Staeheli, 1990). In Laos, the boundaries of participation and transparency in hydropower development have been shaped by the political and economic structures of the state. These structures have controlled the type of participation that has emerged and the way in which neo-liberal market forces have influenced the hydropower development process. Laws and policies that are designed to regulate development and protect people and the environment can be disregarded within these structures, further entrenching the power of regional elites.

Using a political ecology approach, Staeheli (1989) argues that mechanisms operate differently between both macro and local scales. Steaheli (ibid) states that at the macro scale mechanisms tend to be dominated by the demands of capital and at the local level they are characterized by the needs of both production and consumption. Mechanisms have also been influenced by scale in hydropower development in Laos. This chapter will show that in Laos' hydropower development, mechanisms are influenced strongly by macro and meso-scales. Mechanisms at macro-scales are influenced the neo-liberal development discourse, while mechanisms such as lack of transparency and accountability influence hydropower development in ways that meet powerful actors' individual needs at the meso-scale.

Understanding these mechanisms is important in hydropower because dams and water resource management are highly politicized. Hydropower is interwoven with ideas of modernity, technological advancement and economic growth. Powerful actors are able to use state apparatus and the ideologies behind hydropower to push forward potentially environmentally and socially devastating decisions and policies. These decisions benefit the state and also increase the wealth and power of the key actors involved in the alliance of the political class and the international private sector investors. At the same time they have the potential to seriously negatively impact the biodiversity and livelihoods of millions of people in the Mekong Basin.

Despite their importance, the existence and examination of meso-scale political, economic and social mechanisms has rarely been explicitly addressed (Hedstrom and Swedberg, 1998). Existing geographical and political ecology literature on Laos' hydropower development examined macro scale mechanisms and their links to local scale and vice-versa (see Molle et al. 2009; Hirsch, 2006 etc.) Meso-scale political, economic and social mechanisms such as corruption and weak transparency and their impacts are often discussed by journalists and academics at a cursory level (see Chapter 3). This study uses a political ecology approach to engage directly with meso-

scale mechanisms to uncover evidence of the degree to which they directly influence hydropower development and the winners and losers of environmental change.

The examination of meso-scale agents and structures in social, political and economic systems is complex and often the data and especially the politics that determine the outcomes are inaccessible. Smits and Bush (2010) use a political ecology approach to examine meso-scale mechanisms in Laos to understand what had driven and enabled the neglect of pico-hydropower policy within the state. They found that the policy environment had promoted a strong centralisation tendency in hydropower, and that electrification of rural areas was wrapped in the agendas of multilateral development actors who sought large-scale developments rather than small scale ones. These mechanisms within the state are important drivers and enablers of hydropower development. They illuminate how hydropower development is linked to Regional and international political and economic structures and local level environmental and social impacts. The mechanisms described by Smits and Bush (ibid) have allowed dams to be built in ways that benefit powerful actors while environmental and social impacts have been largely ignored. The power that these mechanisms cede to actors further entrenches and protects them from change.

This chapter is divided into two parts. The first part uses a political ecology analysis to explore the political, economic and social structures and mechanisms of transparency, accountability and the weak civil society that have existed within Laos. The Chapter examines how the influx of private sector investment and a neo-liberal discourse on development has combined and entrenched the mechanisms and structures within the Laos state. The second part of the chapter uses a political ecology approach to examine case studies to exemplify these political, economic and social structures, showing the ways in which they have shaped dam construction, the Impact Assessment process and the environmental and social impacts of dams. The chapter concludes by summarizing the impact of these meso-scale mechanisms on hydropower development.

6.2 Transparency, Accountability and Weak Civil Society

The World Commission on Dams (WCD) (2000) Report placed transparency, accountability and participatory decision-making as three of its five core values emphasizing their importance in hydropower. As highlighted by the WCD Report, however, very few, if any, large-scale dams have been guided by these practices.

For example, MacDonald's (2001) study showed that the World Bank (WB) repeatedly failed to adhere to its own policies on transparency and accountability in funding large-scale hydropower projects around the globe. Reisner (1986) details how the American West's hydropower development was guided by top-down decision-making with little or no accountability or transparency. The development of hydropower in Laos has been no different. Poor transparency and accountability are sanctioned by political structures, and laws and policies empower and insulate influential actors in hydropower development.

Due to the sensitive nature of transparency, accountability and freedom of the press the topic has been difficult to research and analyse, however, some indicators and statements have provided very useful evidence. In the 2011 Economic Freedom World Ranking, Laos was ranked 141st out of 179 countries for its economic freedom. This ranking examined ten benchmarks that include, freedom from corruption, Government spending and property rights. The Economic Freedom Ranking statistics are reinforced by Transparency International's Index, which measures the violations of press freedom, places Laos 165 out of 179 countries for its freedom of the press. The country is in the sixth percentile rank for 'voice and accountability', which measures the degree to which citizens are able to participate in Government, and the degree to which they can express themselves and associate freely. Molle, Foran and Käkönen's (2009) study into hydropower development supports this analysis by

stating that a lack of transparency within the hydropower sector continues to be a serious problem.

Stuart-Fox (2006) posits that weak transparency and accountability permeates Laos' institutions and organizations. The banking sector, for instance, has been heavily impacted by non-performing loans to state-owned enterprises and politically connected individuals. Furthermore, a World Bank (2004) report stated that loans from state-owned banks in Laos are often given for political and non-commercial reasons.

The lack of transparency and accountability in Laos is exacerbated by the tightly controlled press. All newspapers in Laos are state-controlled and journalists are required to seek authorization from relevant Government organizations before reporting on corrupt practices (Keuleers, 2004). An interviewee who worked for the state-owned English language newspaper, the Vientiane Times, explained that "All the articles published are strictly edited to remove any criticism of the Government or military. Because of the political nature of hydropower it is reported often and always with a positive spin" (R1, 2011).

For weak transparency and accountability to be kept in place, however, they must be accompanied by authoritarian control of society with restrictions on grassroots civil society. Grassroots civil society is defined as "a sphere of social interaction between the household and the state which is manifest in accepted modes of community cooperation, structures of voluntary association, and networks of public communication." (Bratton, 1994:3). Gramsci (1949) points out that grassroots civil society can play an important role in challenging or moderating state power. For example, grassroots civil society influenced the emergence of democratic opposition to authoritarian states in Europe (Havel, 1985; Rau, 1991).

Grassroots civil society, however, is more than a substitute for governments. As Douglas (1982) argues, civil society also helps to moderate the power of business and development's negative environmental and social impacts. While grassroots civil society can be the voice of the environment, it must not be considered as a homogenous community. It has a variety of its own agendas and politics. Nevertheless, grassroots civil society's potential to change governments and influence policy and business makes it a potentially extremely powerful solidarity in hydropower development.

Although grassroots civil society in Thailand has been effective at influencing Government agenda and private sector investment surrounding hydropower within the country, the same cannot be said of Laos. Lao's lack of transparency, state-controlled press and its authoritarian Government have curtailed the existence of grassroots civil society movements. In what appeared to be an opening up of Government policies, in 2009 Laos signed the *International Covenant on Civil and Political Rights* establishing a legal framework to allow the licensing of NGOs (UNTC, 2012). Although this treaty allows the formation and existence of civil society, the Government of Laos (GoL) has used political mechanisms within the state to impose strict rules under which INGOs can operate, and continues to supress and prohibit the formation of grassroots civil society (Case, 2011).

The terrain of civil society in Laos is predominately represented by the dozens of International NGOs (INGOs) working in the Region. The Directory of Non-Government Organizations in Laos, supported by the World Bank, states that there are 69 INGOs working in the country. Many of these INGOs are working on hydropower and water management issues. The political ecology analysis demonstrates that their effectiveness in influencing hydropower development has been delimited by meso-scale mechanisms in three key ways. First, mechanisms within the state including laws and policies control their actions. Second, the GoL uses mechanisms to shape the emergence of good water governance principles such as participation and

transparency that INGOs promote to its benefit. Third INGOs effectiveness is hampered by a disconnect between Western funded environmentalism and regional agendas. The following paragraphs will explain these points in further detail.

First, the GoL uses political mechanisms in the form of laws and policies to control INGOs movements. INGOs have been required to submit the information they publish to the Government and they are forbidden to travel freely in the country and talk to people unchecked. As one interviewee working at a major INGO stated, “We are required to submit any reports or press releases from our office to the Government for approval before they can be published” (CS4, 2012). Although the rules in which INGOs operate are determined by the Government, they are followed to different degrees by INGOs and activists in the Region. For example, as one INGO official stated, “Yes, we are required to submit our internal press releases to the Government for censorship, but we usually do it just before we publish them, so the Government has little time to react.” (CS5, 2012).

At the beginning of this research in 2010, the only reported Western activist or academic associated with hydropower or civil society that had been expelled from the country was Martin Stuart-Fox. He had written extensively on corruption in Laos. Government restrictions on INGOs and civil society have, however, dramatically tightened since 2010. This tightening has coincided with the debate and development of the Xayaburi Dam and the general expansion of private sector hydropower investment (see Chapter 7). In November 2012, Anne-Sophie Gindroz, an NGO director from Helvetas was given 48 hours to leave the country after she penned a personal letter to development practitioners working in the country criticizing the Government’s lack of transparency, accountability and restrictions on freedom. In her letter, Gindroz spoke of the power of mechanisms in Laos to restrict civil society by stating:

> "Real freedom of expression and assembly are not afforded, and those who wish to exercise their constitutional rights and dare to try, often do so at their own peril faced with intimidation, false accusations and increasingly unlawful arrest. The media are censored and, people are forbidden to hold peaceful assembly/demonstration. Even in Burma – this is no longer the case … There are serious constraints on freedom of expression. Those raising critical issues are considered as opposing the Government. A climate of fear is maintained to ensure self-censorship".

The expulsion of Gindroz in November 2012 was followed by the kidnapping of Lao's most prominent grassroots civil society activist in December 2012 (Pearce, 2013). Sombath Somphone, founded the Participatory Development Training Centre which educated rural people in a variety of skills including fish farming and microcredit. In 2005, he was awarded the prestigious Ramon Magsaysay prize for social activism. Sombath's ability to work within the country and his international prominence was considered by many to be a sign that the Government was perhaps willing to engage with grassroots civil society, at least on some level.

Although the Government has denied any involvement in the case, Sombath was last seen on video footage being pulled over at a police stop before his jeep was then driven away by an unknown person. He was then escorted into another vehicle. The video shows that the police made no attempt to intervene (Pearce, 2013). International organizations and states such as the United States have offered assistance in the investigation, but the Government has rejected all help (Pearce, 2013). At the time of writing in 2013, the Government of Laos (GoL)'s investigation had yet to uncover any leads. Rumours around Vientiane stated that Sombath was kidnapped due to his instrumental role in organizing the Asian-Europe People's Forum. This high profile meeting provided a rare forum for Lao community leaders to discuss issues such as universal social protection and sustainable energy production including hydropower (AEPF, 2012). Whether the Government was involved in

Sombath's kidnapping or not, both of these events have increased the culture of fear in the country. According to a Mekong River Commission employee familiar with NGO issues, "Locals are leaving work early now to get home before dark. People are scared." (CS6, 2013).

Huerlin (2009) argues that Laos' decision to allow civil society to operate while at the same time tightly control it has been underpinned by the fact that it is a socialist state with little financial resources. The State has not had the financial means to implement social development projects. The Government therefore has used political mechanisms within the state to allow INGOs to operate and fund social projects while tightly restricting the grassroots organizations that could pose a threat to its rule. These mechanisms allow INGOs to serve the state, but the state is still able to avoid criticism and accountability that grassroots civil society may promote.

The second factor that has impeded INGO influence is the way the Government, legitimized by the WB and the ADB, has used meso-scale mechanisms to shape the emergence of good water governance principles such as participation and transparency. The MRC, its donors, INGOs and the WB and the ADB's Greater Mekong Subregion (GMS) programme have supported Laos in developing and improving a number of its environmental and social policies surrounding hydropower development. For example, the National Policy on Environmental and Social Sustainability in the Hydropower Sector calls for high levels of disclosure, including the protection of 'project affected people' and the inclusion of free prior and informed consent in the development (NPES, 2005).

As discussed in Chapter 2, the Mekong Committee has focused on developing the water resources of the Basin primarily through infrastructure such as hydropower and irrigation projects. Following the establishment of the MRC in 1995, donors introduced a different set of governance objectives that moved away from the heavy

focus on hydropower development to one that contained principles based on "sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin" (MRC, 1995).

Under the MRC, this new development agenda emphasized cooperation around scientific studies, capacity building and environmental protection (Jacobs, 2002). For donors, this narrative provided a strategic opportunity to open dialogue spaces with the Region's emerging markets and at the same time allowed them to meet aid objectives by encouraging good governance principles in the Basin's future water management (McCawley, 2001).

For the Government of Laos, however, these new principles represented a threat to its control and power. The governance principles being introduced by the MRC and INGOs promote the devolution of power from Government to a form of governance that included the State, the market, civil movements (NGOs) and civil society. Using a political ecology analysis, Ribot (2004) states that this devolution of power is often met by strong resistance from those in power. This contention has been true in Laos where mechanisms empower decision makers through a lack of participation, weak accountability, corruption and a lack of transparency. These meso-scale mechanisms have sustained the power of elites. Although the Government was reluctant to accept these new principles, the MRC and its donors were also seen as an important source of much needed funding and economic stimulus for underdeveloped Laos. For example, from 1990 to 1995, net Overseas Development Assistance flows to Thailand and Indochina rose by approximately 400% from $422 million to $1.66 billion (OECD, 1995). The potentially lucrative investments that accompanied the acceptance of these good governance principles may have influenced the government's decision to accept them. Mechanisms within the state, however, allowed the GoL to accept these principles, but not make any real change to its political, economic and social structures.

Enabled by mechanisms from within the state, a scalar disconnect between the agendas of powerful hydropower proponents in the GoL and the agenda promoted by the MRC has nullified the meaningful implementation of good governance principles. The good water governance interests promoted by the MRC's international donors such as holistic participatory water management and monitoring and evaluation programs have been tolerated by the Lao Government to demonstrate their commitment to these processes, but at the same time Government policies have continued to focus on top-down, non-transparent rapid hydropower development (Suhardiman et al., 2012). In fact, to date the MRC has largely only managed to gain cooperation from all of its member states on apolitical issues. This disconnect allows governments to implement policies of sovereign interest "because the MRC lacks power to direct transboundary water governance issues in the Region" (ibid:12).

The MRC was not the only funder espousing these principles. From the 1990s, The Asian Development Bank (ADB) and the World Bank (WB) also promoted a brand of good water governance. Their approach was more closely aligned with neo-liberal policies that encouraged market-led development of natural resources. A centrepiece of this agenda was the implementation of the Greater Mekong Subregion (GMS) Programme, a scheme strongly focused on the connectivity of markets and economies and private sector investment in hydropower development to advance economic growth and reduce poverty within the framework of good governance (Middleton et al., 2009). The GMS mandate has promoted interconnectivity and hydropower development, including private sector investment in mainstream and tributary dams, but still included calls for participation and transparency in the hydropower development process. This programme's focus on development, however, appears to have been rapidly accepted by the Region with all Basin states signing on as members.

The political ecology analysis demonstrates that the principles of good water governance promoted by the ADB and the WB alongside regional connectivity and

the agenda of the GMS programme have shifted the concept of participation and transparency away from individual countries and local scales to a larger Basin scale that creates an area of perceived harmonious community called the “Greater Mekong Subregion”. This scaling of participation and transparency at a Basin level has meant that the application of these principles can be achieved through INGO participation rather than local grassroots participation. By scaling hydropower development within the GMS, the ADB and the WB have encouraged participation from actors who have been able to engage at a regional scale, such as the numerous INGOs. This type of engagement has enabled the GoL to appear to be somewhat transparent and participatory in its decision-making. In reality, the GoL has only engaged with non-local actors in a space that it tightly controls, allowing it to avoid much of the policy pressure of INGOs by accepting their existence and defining the shape of their participation within its own boundaries. By scaling participation at the Basin level and using meso-scale mechanisms to control INGOs, the GoL has also created the illusion that it was following the international policy norms promoted by the WB and the ADB.

The third factor that delimits INGOs in the Region is that their Western-funded discourses and practice may not reflect local needs, and may also clash with regional development discourses.

Like many developing countries, Lao has been a consumer of international development knowledge. The principles of participation, equity, and transparency in water governance and hydropower development that have been encouraged in the Region emerged from outside agendas . For example, Laos’s signing of the International Covenant on Civil and Political Rights was strongly influenced by outside interests (McCawley, 2002). The introduction of the good governance principles drew from an international trend encouraging a new ‘softer development agenda’ focusing on good governance issues that emerged in the 1980s and one that was heavily promoted by INGOs from the mid-1990s (McCawley, 2002).

INGOs in Laos have articulated power and legitimacy through their Western representation and the internationally accepted discourses and practice they promote (Peet and Watts, 1996). This perceived legitimacy and Western-influenced knowledge may be unrepresentative of local needs and clashing with regional development discourses. As will be discussed in Chapter 7, for example, many INGOs in the Region, promote hydropower as being devastating to the environment of the Region while downplaying its economic benefits. Sunderberg argues that INGOs assume 'the moral authority to speak for nature' (Sunderberg, 1998:14). This use of Western knowledge by INGOs enables them to articulate a form of power and claim legitimacy within environmental and social impact debates.

This form of legitimacy, however, appears to be out of step with the development agenda of regional states. Furthermore, the INGO perspective of the environmentalism has also not always been accurately representative of local level needs (Sunderberg, 1998). This clash of agendas has created tensions between states and developers and INGOS. A former employee with IR stated that "although IR's official stance is not anti-dam, they do not support any large-scale hydropower development. This stance made it increasingly difficult to engage in dialogue with developers and governments" (CS2, 2011).

The three factors discussed above: meso-scale mechanisms within the state that control INGOs and supress grassroots civil society, the GoL's use of meso-scale mechanisms to shape the space in which good governance principles emerge and the effects of diverging development agendas between INGOs and the GoL, have all combined to restrict INGOs effectiveness in Laos. These three factors have allowed the GoL to create a situation of manufactured consent with civil society in the Region. While the GoL has been seen to work with INGOs and to follow good governance principles, it in fact it controls the space and agenda in which these principles emerge.

At the same time, it has supressed any grassroots civil society that may have reflected the true will of its people.

A political ecology approach demonstrates that the impacts of meso-scale mechanisms such as weak transparency and poor accountability that have created manufactured consent with civil society and controlled freedom of the press have also created space for corruption to emerge in hydropower development within the public and private sectors in Laos.

6.3 Corruption and Hydropower Development in Laos

Corruption is pervasive and significant around the world. In developed countries, the defence industry is often susceptible (Goel and Nelson, 1998). In developing countries, corruption may account for large fractions of the Gross National Product (Shleifer and Vishny, 1993). Schleifer and Vishny (ibid) argue that the structure of Government institutions and political structures and mechanisms including weak accountability, a lack of transparency, weak civil society and a controlled press are determinants of corruption. Furthermore, Rose-Ackerman (1999) states that corruption often flourishes in authoritarian regimes that create few measures that promote accountability and transparency. In Laos, corruption has emerged due to meso-scale mechanisms and structures that limit transparency and shield decision makers from accountability.

Although Laos has labelled itself as a single party communist state that has incorporated the principles of good governance such as transparency and accountability, Stuart-Fox (2008) posits it is better understood as an “authoritarian one party state, in which the Party presides over a transitional market economy” (Stuart-Fox, 2008: 65).

Corruption can take on many different guises. In Laos the two main types of corruption that have emerged in hydropower development have been public official and private sector corruption. One of the most cited definitions of public official corruption is:

> "Behaviour which deviates from the normal duties of a public role because of private-regarding (family, close private clique), pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence. This includes such behaviour as bribery (use of rewards to pervert the judgement of a person in a position of trust); nepotism (bestowal of patronage by reason of relationship rather than merit); and misappropriation (illegal appropriation of public resources for private-regarding uses)" (Nye, 1967:966).

Gardiner (2002) notes that Nye's definition of corruption and its focus on private gains includes situations where the goal of an individual's corruption is to benefit his or her political party or group.

The second type of corruption that has emerged in hydropower development in Laos is in the private sector. Business or private sector corruption differs from public official corruption because the people committing corruption are not in a public office with public responsibilities. Perhaps one of the most common forms of business corruption concerns kickbacks (Gardiner, 2002). These occur when extra payments are given to circumvent rules or norms. Another type of business corruption is fraud. Fraud typically involves deceptive statements or acts as a way of securing extra benefits. In the case where there is no deception this is theft (ibid). Meso-scale mechanisms within the state such as transparency, poor accountability and weak freedom of the press help to foster corruption. And likewise, corruption helps to entrench a lack of transparency, poor accountability and weak freedom of the press.

Haas (2008) found that hydropower is a high-risk sector for corruption because it has huge budgets, complex administrative systems and multiple actors, which offer many opportunities for corrupt practices to emerge. While Bosshard and Hildyard (2008) further state that large-scale hydropower projects are more susceptible to corruption because the actors involved tend to be more powerful and have deeper pockets than smaller projects. Construction works are usually the largest budget line in dam development 'making dam construction a primary target for corruption' (ibid: 87).

Haas (ibid) notes that typical hydropower projects involve a number of ministries including those in charge of land acquisition, resettlement, impact assessments, and infrastructure. Although decision-making in Laos has been ultimately vested in the Politburo, a typical large-scale hydropower development has involved a number of Government departments, ministries and agencies including those responsible for peripheral jobs such as access roads and related infrastructure.

This condition is further compounded by complex Build Own Operate Transfer (BOOT) modes of investment and private sector norms that have involved legions of contracts and regulations between several companies for materials, equipment, management and consultancy. In the Nam Theun 2 Project, for example, there were 26 separate financial institutions involved in funding, each with its own accountability requirements (Haas, 2008).

Another issue in hydropower development has to do with the way in which "vested interests unduly influence decisions about the mix of water and energy service options the society chooses" (ibid: 117). Policy capture tends to skew the benefit and risk analysis of hydropower in favour of powerful agendas. These mechanisms have had direct negative effects on social and environmental impact mitigation that emerge through the Impact Assessment process. Haas (ibid) and the WCD (2000) both emphasize that corruption amplifies the negative impacts of hydropower on

ecosystems. In the Mekong Basin, as in many developing countries, impacts on the environment have immediate consequences on people's livelihoods, which rely on these ecosystem services for food and income. Figure 6-1 outlines the different avenues for corruption throughout the hydropower project cycle.

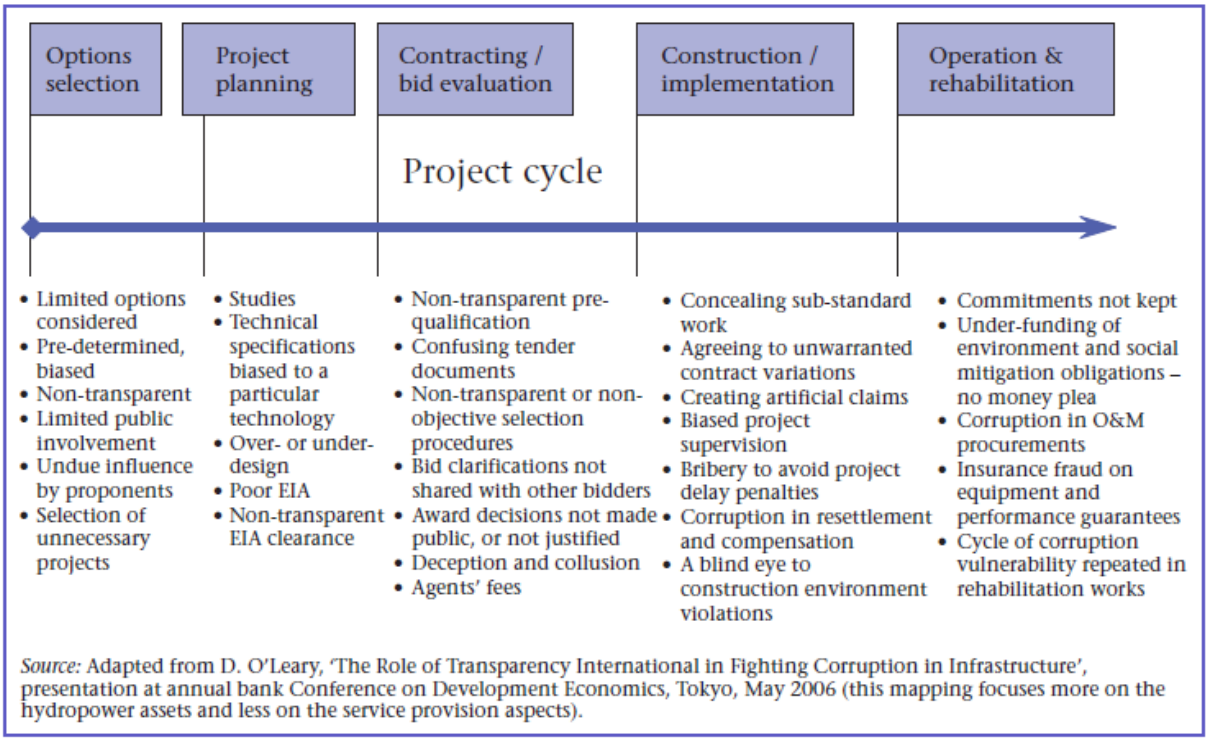

Figure 6-1 Scope and enabling conditions for corruption in various stages of a project cycle.

Source: Hass (2008:88).

Corruption, although difficult to detect and often circumstantial, has been studied as a major issue in Laos (Stuart-Fox, 2006, 2011). Laos was ranked 160th out of 183 countries in the 2012 *Index of Transparency International's Corruption Perceptions*, suggesting it was at that time one of the most corrupt countries on earth. The same index ranks Laos' public sector corruption score at 21 out of 100 (with 100 being perceived as very clean). This 21% ranking shows the extent to which citizens have confidence in and abide by the rules of society – especially contract enforcement, property rights, the police and courts. As Stuart-Fox (2011:2) states, "[c]orruption is

the ogre in the woodpile of Lao politics. It extends throughout the bureaucracy and the police and security forces".

Despite the existence of corruption in Laos, the state has strong anti-corruption laws. Meso-scale political, economic and social mechanisms within the state, however, have insulated powerful actors from these laws. In 1999, a decree issued by the Prime Minister's Office emphasized the state-owned mass media's publicizing corruption cases. To date there has not been a single report on the issue (Stuart-Fox, 2011). In 2005, the Government passed anti-corruption laws by the National Assembly. Once again, no senior official to date has ever been indicted (ibid). According to Transparency International's Index, Laos' corruption could be getting worse as its ranking has dropped by 11 places from 2011 to 2012. Numerous U.S. Embassy cables from Vientiane released by WikiLeaks raised the issue of corruption as a serious problem in Laos (WikiLeaks, 2008). In fact, some people attribute the 2011 resignation of Prime Minister Bouasone Bouphavanh to his attempt to tackle corruption in the country (Stuart-Fox 2011). If this is true, it serves as an acute example of the grip that corruption has taken on the country.

Few studies have focused on corruption in Mekong hydropower development. The analysis of energy security in South-East Asia by Simpson (2007) showed that powerful actors from Thailand's energy sector have used the institutional and political structures in Laos as a mask which hides and at the same time sanctions corruption. The situation has enables EGAT and Thai investors to externalize the environmental and social costs of energy production. Foran et al. (2010) found that in the Lao hydropower sector decisions can be guided by profit without transparency, participation, or planning. Mechanisms in Lao, including a lack of transparency, create corruption. As one interviewee stated, "The salaries of District Officials and Electricité du Lao (EdL) employees are more or less token. Officials are expected to survive by commercialising their activities. It was no surprise to find malpractice in the Impact Assessment process" (PS5, 2011).

The meso-scale mechanisms within the Laos state that empower corruption and vice-versa have been augmented by private sector involvement in hydropower. Next we shall use a political ecology approach to explore how the introduction of private sector investment, Independent Power Producers (IPPs), and the BOOT model in Laos has influenced mechanisms within the state and enabled hydropower development that ignores its social and environmental costs.

6.4 Structures of Investment and Government Capacity

The analysis so far in this chapter has analysed how meso-scale mechanisms within the state empower decision makers over civil society and good governance principles. The analysis has also highlighted how corruption is empowered by and empowers mechanisms.

This section uses a political ecology approach to examine how new forms of investment have influenced and empowered mechanisms within the state and shaped the way hydropower is built. It further discusses how these new forms of investment have influenced the IA process by taking advantage of weak capacity in the bureaucracy. Bureaucratic capacity is important in hydropower development because it represents the operational arm of the state that controls the laws and policies that are designed to protect people and the environment, such as the Impact Assessment process.

From the 1990s, the neo-liberal discourse promoting private sector investment in hydropower development encouraged the GoL to adopt formal market norms to protect the private sector from competition such as confidentiality and intellectual property. These norms have encouraged and legitimized mechanisms within the state that fortify secretive and non-transparent practices surrounding hydropower development. These norms and mechanisms from within the state have also entrenched lines of inclusion and exclusion in the hydropower development process.

As discussed in Chapter 5, over the last two decades, the private sector has been increasingly influential in leading Laos through a rapid transition to hydropower electricity production. This rapid transition has presented a number of capacity challenges for Government ministries, laws and officials in Laos that are responsible for regulating the various aspects of hydropower development and its impacts.

One of the key challenges in Laos has been bureaucratic capacity. Weak capacity has contributed to accentuating and fortifying powerful interests and players. In hydropower development it has created opportunities for developers and investors to by-pass laws and regulations ultimately enabling them to increase profits. The analytical approach of political ecology has always been concerned with the issue of who has power and with what right and to what effect. In Laos, weak capacity must be considered in the context of the meso-scale mechanisms that has shaped and created it.

Government jobs in Laos are considered stable and prestigious. Within the tightly controlled state Government employees are expected to conform to the communist party rules. There is little room for dissent (Stuart-Fox, 2011). This tight control results in very little institutional protection for employees to challenge the bureaucratic processes surrounding high level decisions. In the case of hydropower development, decisions are made at the highest level of Government and conform to a neo-liberal influenced agenda that has encouraged rapid private sector led hydropower development. Once these decisions have been made, the bureaucracy is left to implement the decisions. The bureaucracy, however, is often underfunded and has little experience or incentive to deal with private sector investors and the environmental and social impacts of dams.

The introduction of the Build Own Operate Transfer (BOOT) model has compounded these capacity issues. BOOTs include intricate contracts, Impact Assessments in

English and private sector business practices such as confidentiality and intellectual property rights. BOOTs have also impacted the implementation of EIAs. EIAs are a requirement for WB and ADB funding and an important part of international best practice hydropower development (see Chapter 2). However, with the influx of private sector financing requirements, their implementation and rigor are highly variable. EIAs remain important to Western actors for whom they represent international norms, but for local developers they may be considered a foreign and inconvenient process that has to be completed to justify and legitimize projects in the eyes of Western audiences.

Context is also important when considering the capacity of the GoL to regulate hydropower development. As one consultant pointed out when discussing the Impact Assessment process, "The capacity of Government to regulate private sector development is a serious problem, but even with proper capacity it is doubtful if it would change the decision-making." (PS6, 2012).

This statement provides an important insight into the influence of the neo-liberal development discourse, and the power that narratives and mechanisms grant elites. (See Chapter 2 and Chapter 5). Dam construction, electrification and rapid economic growth led by private sector investment have been central to this vision of development and modernization. Mechanisms within Laos have empowered actors throughout the hydropower development process and created economic and political incentives for them to proceed with development despite its potential social and environmental costs. Examples of these developments are presented below in Section 6.5.

Furthermore, the influence of mechanisms and narratives on the IA process illustrates the absence of power that EIAs have to prevent or shape development. As explored in Chapter 2, in both developed and developing countries EIAs almost never stop

projects from moving forward. The EIA process does not require any changes in how projects are developed. EIAs are at worst a rubber stamp and at best result in design changes (Alshuwaikhat, 2005).

For example, the Salzman and Thompson (2007) study point out that EIAs provide a subjective analysis of environmental impacts and alternative options, but the ultimate choice to move forward with the Project is up to the decision-maker.

Furthermore, the fact that EIAs occur at a fixed point in the planning process has removed the requirement for developers to revisit the EIA. This situation has created circumstances where monitoring and evaluation have no priority.

There have been a number of Government agencies involved in hydropower development in Laos (See Table 6-1). This study will focus on four key agencies of the Ministry of Energy and Mines (MEM), *Electricité du Laos* (EdL), the Water Resource and Environment Administration (WREA) and the Committee for Planning and Investment (CPI).

Table 6-0-1 Overview of agencies in the Laos Hydropower Development Sector.

Source: Department of Water Resources and Environment (2008).

General Functions	**Ministry / Agency**
Direct management as well as development of policies and plans for water	1. WREA Department of Water Resources Department of Meteorology and Hydrology Department of Environment Department of Environmental Impact Assessment

resources	Water Resources and Environment Research Institute LNMC Secretariat 2. Ministry of Agriculture and Forestry 3. Ministry of Energy and Mines (formerly Ministry of Industry and Handicrafts) 4. Ministry of Communication, Transportation, Post and Construction (now called MPWT) 5. Ministry of Public Health 6. Ministry of Trade and Tourism 7. Science, Technology and Environment Agency, Water Resources Coordination Committee, LNMC (now included partly or completely in WREA)
Provision of water and water- related services, development of policies and plans	1. Ministry of Agriculture and Forestry Department of Forestry Department of Irrigation Department of Livestock and Fisheries
Functions in water- related sectors, management of watersheds	Department of Planning (Integrated Watershed Management Unit) National Agriculture and Forestry Extension Service National Agriculture and Forestry Research Institute 2. Ministry of Public Works and Transport Water Supply Authority Department of Housing and Urban Planning Department of Bridges and Roads (Inland Waterway Division) Department of Transport (Inland Waterway Transport Division) 3. Ministry of Energy and Mines Department of Electricity EdL

	Department of Mining 4. Ministry of Public Health Department of Sanitation and Preventative Medicine (National Centre for Environmental Health and Water Supply) Department of Foods and Drugs 5. Prime Minister's Office Land Management Administration
Carrying out functions which directly affect the water sector	1. Committee for Planning and Investment Department of General Planning National Institute of Economic Research Department of Investment Planning National Statistics Centre 2. Ministry of Foreign Affairs Department of Foreign Management and Economic Cooperation Department of Law and Treaties 4. Ministry of Justice Department of Law Department of Law Dissemination and Advertisement 5. Prime Minister's Office National Geographic Service Public Administration and Civil Service Authority

Overall responsibility for power sector development in Laos has been vested in the MEM[6] and more specifically in the Department of Electricity. MEM's responsibilities have included:

• Promotion of pipelines of projects (database);

• Formulation of power sector policy and procedures;

[6] The Ministry for Energy and Mines was, until 2006, known as The Ministry of Industry and Handicrafts (MIH).

• Reviewing IPP studies and agreements;

• Participation in tariff negotiations with foreign investors;

• Monitoring environmental impacts and Environmental Management Plans in cooperation with the Science Technology and Environment Agency (STEA) and other relevant ministries, agencies, and local authorities;

• Establishment and monitoring of technical standards.

(Source: IPP procurement manual, 2006).

Electricité du Laos (EdL) sits under MEM and is the state-owned corporation that has operated the main generation and transmission lines in Laos. It also controls the distribution of electricity imports and exports. EdL also works closely with the IPP projects.

Until 2008, the Science Technology and Environment Agency (STEA) was responsible for coordinating the environmental planning and management of projects across all sectors. In 2008, Government restructuring to improve capacity, supported by the WB and ADB, created the Water Resource and Environment Administration (WREA). WREA enveloped the STEA, the Department of Meteorology and Hydrology (formerly in MAF), the Water Resources Coordination Committee (WRCC) and the Lao National Mekong Committee (LNMC). The WREA sat under the Prime Minister's Office. From 2008, The Lao Department of Environmental and Social Impact Assessment (DESIA) was created within WREA and assumed responsibility for approving Environmental and Social Impact Assessments (ESIA) in the country.

The Committee for Planning and Investment (CPI) has been another key agency in hydropower development. The CPI sits within the Prime Minister's Office and has

been chaired by the Deputy Prime Minister and also included the Minister of Energy and Mining and the Minister of Finance.

Although the responsibility for the bureaucratic implementation of laws and policies surrounding hydropower sits with a number of agencies, the ultimate decision for any significant project in Laos rests with the all-powerful 11 member Politburo at the top of the Government (Stuart-Fox, 2008).

As highlighted above and in previous chapters, with the WB and the ADB pushing neo-liberal policies on Laos in the 1990s, the GoL began to move away from its centrally planned economy to one that was open to market forces and private investment. The first hydropower project to trial this new private sector-led model was the 45 MW Xeset Dam completed in 1991. The ADB supported the funding of the Dam as a key step in opening up of the Lao economy (Rosario, 2011). The Dam was also the first in the country to export surplus energy to Thailand, laying the groundwork for future exchanges with Thailand and the Region.

Following the successful completion of the Xeset Dam, the Ministry of Industry and Handicrafts (later renamed the Ministry of Energy and Mines), began to receive dozens of MoU requests from regional and international private hydropower developers and IPPs anxious to profit from Laos' newly opened hydropower industry (PS7, 2011).

These IPPs were an important force in shaping the Lao economy. As one consultant put it, "The IPP program was about the only economic card GoL had to play" (PS7, 2011). The opening up of Lao economy to IPPs represented more than hydropower development. The neo-liberal policies opened the underdeveloped economy of Laos to a host of global and regional forces. Investors were keen to profit from Laos'

relatively untouched market and natural resources, including mining and forestry. One of the key drivers of this investment during the early 1990s was the economic boom in Asia. In the years preceding the Asian Financial Crisis, Asian economies were developing rapidly and many firms were seeking new markets and high return, high-risk investments for large amounts of capital (Studwell, 2007). A World Bank report states that from 1990 to 1997 global private annual investments in developing country infrastructure rose from $19 billion to approximately $120 billion (Izaguirre and Rao, 1999).

The GoL was ill-prepared for this transition. With no political risk guarantees and poor risk-mitigation measures, many reputable hydropower developers avoided Laos because the potential costs and risks outweighed the benefits (PS6, 2012). As a consultant with the Ministry of Energy and Mines during the 1990s stated:

> "The lack of capacity in the Government meant that the objectives were not defined in any quantitative sense and they did not have the people and institutions to control a program of such size and complexity. There was over-reliance on developers for the financial modelling to project GoL benefits and contracts needed to mobilize money from the debt markets. They were lambs to the slaughter in the early years" (PS8, 2012).

Huntington (1965) has pointed out that strong political institutions are necessary for the political institutionalization needed to regulate rapid modernization. Strong political institutions have the necessary scope, adaptability, complexity, endurance and coherence to regulate rapid development (ibid). Many of these principles are absent in Laos because of the existence of mechanisms within the state. Jarvis (2010) further argues that in order to attract investors, developing countries must provide political risk guarantees to reduce the impact of poor transparency and uncertain political

environments. In the early 1990s, the lack of security and high risks of investments resulted in a number of exploitative developers entering into agreements with the GoL. Commenting on the type of developers operating in Laos during this time, one consultant stated:

> "The GoL had no capacity to regulate the developers sweeping in to profit from Laos freshly opened market. There were many dodgy types around town and it felt as if hydropower had gone the way of the Wild West – build first ask questions later." (PS9, 2011).

The opening up to private sector investment combined with Laos weak bureaucratic capacity and mechanisms from the state that created opportunities for decision makers to benefit from development through corruption, weak transparency and no accountability resulted in at least 23 MoUs signed with various hydropower developers (See Table 6-2).

Table 6-2 BOOT export hydropower projects and MoUs as of November 2003.

Source: Interviews and Wyatt's Unpublished PhD Thesis on BOOT in Laos and Vietnam (2004).

Project	**Capacity**	**Project company / lead Sponsor**	**Type of Agreement**	**Power Purchase Agreement**
Theun Hinboun	210	Theun Hinboun Power Company	Concession Agreement	Yes
Houay Ho	150	Houay Ho Power Company (Daewoo – South Korea)	Concession Agreement	Yes
Nam Theun 2	720	Nam Theun Electricity Company	Concession Agreement	Yes
Nam Ngum 2	980	Shlapak (US)	Concession Agreement	No
Nam Ngum 3	440	GMS Power (Thailand)	Project Development November 1997	No

Sepian/Senamnoy	390	Dong Ah (South Korea)	Concession Agreement	No
Xekaman 1	468	ALP Management (HECEC – Australia)	Concession Agreement	No
Nam Theun 3	237	Heard Energy (US)	Project Development Agreement	No
Nam Mo	105	Mahawongse	Project Development Agreement	No
Nam Tha 1	263	SPS	Memorandum of Understanding	No
Nam Theun 1	540	SUSCO (Thailand)	Memorandum of Understanding	No
Nam Lik	100	Hainan SIT (China)	Memorandum of Understanding	No
Nam Ngum 5	90	Melkyma	Memorandum of Understanding	No
Nam Ou	600	Pacific Rim	Memorandum of Understanding	No
Xe Katam	100	Hydro Power	Memorandum of Understanding	No
Nam Khan 2	126	Hydro Quebec (Canada)	Memorandum of Understanding	No
Nam Suang 2	190	VKS	Memorandum of Understanding	No
Nam Nhiep 2+3	565	VKS	Memorandum of Understanding	No
Phapheng (Thakho)	30	True Assess Ltd.	Memorandum of Understanding	No
Nam Bak (Cha) 2B	120	Nisho Iwai (Japan)	Memorandum of Understanding	No
Nam Bak (Cha) 1+2	185	HECEC (Australia)	Memorandum of Understanding	No
Xe Kong 4	528	Modular	Memorandum of Understanding	No
Nam Ngiep 1	440	Shlapak (US)	Memorandum of Understanding	No
Nam Mang 3	50	Ch Kanchang	Memorandum of Understanding	No

These MoUs created a large list of potential hydropower developments with many investors. The Government and its ministries were responsible for choosing which project to allow and in which order they would develop. The result of this influx of developers was a number of dams being planned along the same river with potential to impact each other's technical and economic viability. See figure 6-2.

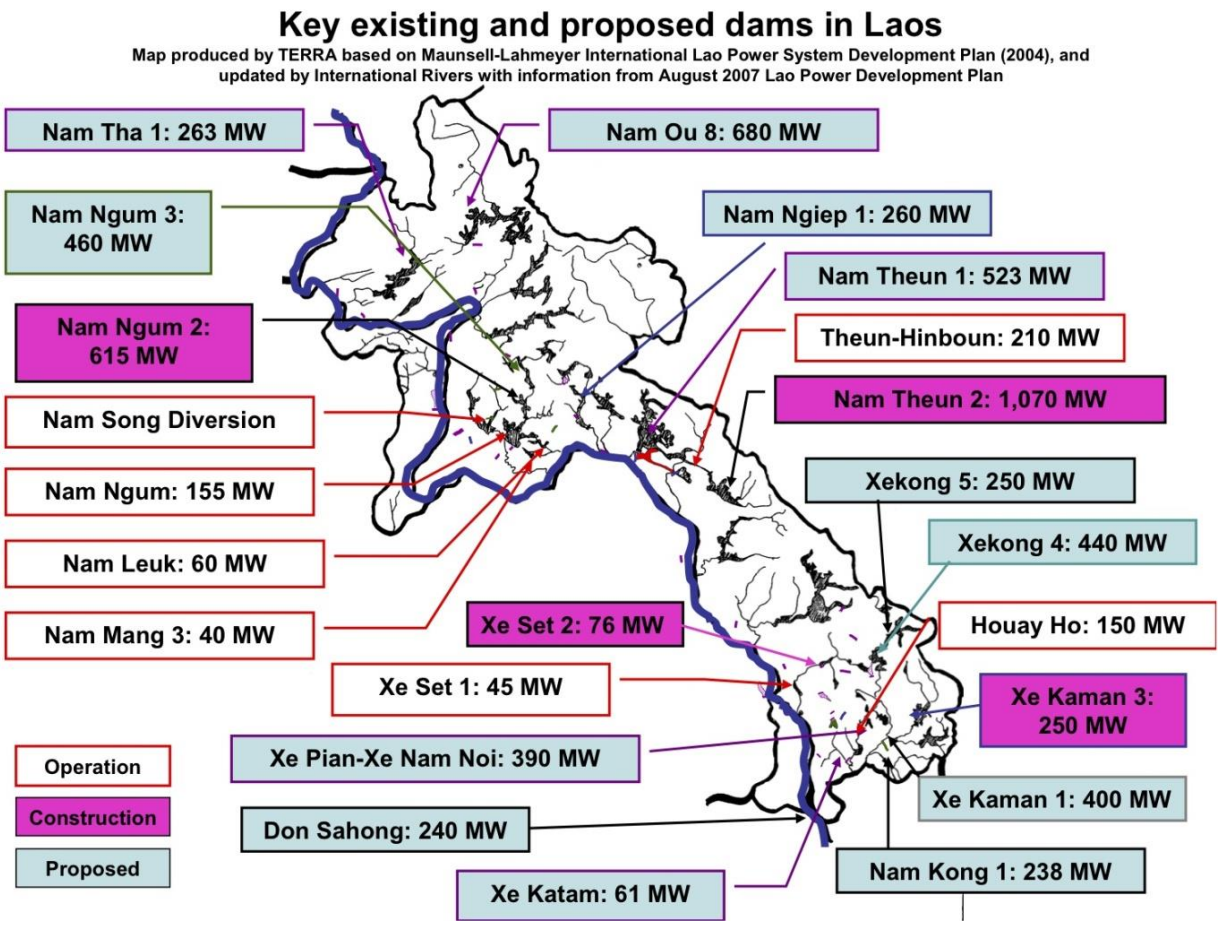

Figure 6-2 Proposed dams in Laos 2007.

Source: International Rivers.

In 2007, one consultant working at this time illustrated the influence of these new projects stating that,

> "This was like a dance of the MoUs. There was no capacity or willingness in the Government to plan hydropower across the country. MoUs were signed for projects upstream and downstream of other projects, where this Project

> would flood this site etc. It was just a race to see who could get up the ranking list to secure funding so they could start making money." (PS2, 2011)

Another consultant further illustrated the challenges that emerge from the projects, stating that:

> "At no stage have any of the strategy studies gone back to the basic situation, taken into account the other uses for water, and the environmental and social dimensions. It is just been one pathetic engineer's list after another of preferred schemes which plays right into the Government's hands. Another list, another name at the top, another payoff to change the order." (PS10, 2011)

A key enabler of this wave of private sector development and IPPs was the introduction of the Build Own Operate Transfer (BOOT) model to Laos. The BOOT model is well known around the world. The first BOOT project was the Suez Canal in 1868. The model became increasingly popular, with the deregulation and liberalisation of market economies from the 1970s to the 1990s. BOOT model projects were promoted by multilateral development banks as a way to encourage private sector financing of large-scale infrastructure projects such as the Channel Tunnel and the Kansai International Airport.

The BOOT model concept involves the private sector handling all the financing, design, construction and operation of what would typically be a public infrastructure project for a concessionary period of usually 20-50 years (Levy, 1996). During the contracted period the private operator is allowed to run the infrastructure at a rate of return high enough to service debts within a maturity period and afterwards to generate a profit of approximately 15% or more (ibid). In the case of Laos's BOOT

projects, the GoL - usually with donor support, has retained a percentage of control in the Project throughout the concessionary period by becoming part of the consortium of investors. This arrangement has allowed investors and private sector contracts to exert a degree of control over the Project depending on what stake they take. Being involved in the project development further allowed state-owned enterprises (SOEs) to gain project contracts. In many dam projects, the Government has involved its SOEs or Government departments in the environmental and social mitigation measures. In the Theun Hinboun project, described below, for example, the GoL took a 60% majority stake in the project and a military company was involved in logging the reservoir. Once the concessionary period is finished the Government acquires ownership of the infrastructure at no cost.

BOOT structures tend to be complex. Within the BOOT contract there are dozens of fees, guarantees, loans and contracts needed between each stakeholder. Figure 6-3 shows a typical BOOT structure for a hydropower plant.

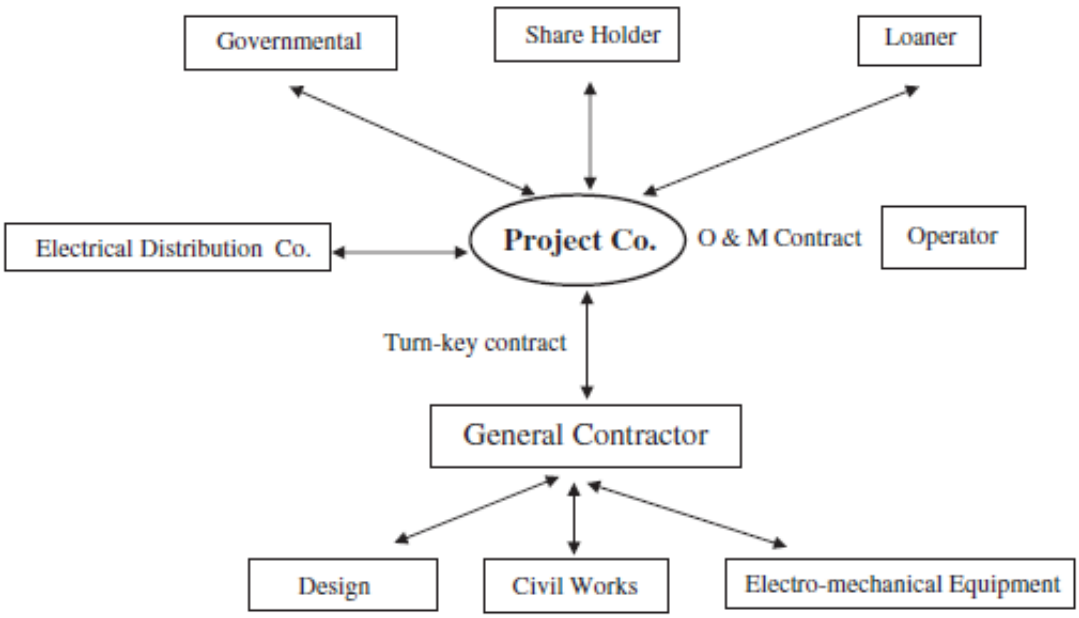

Figure 6-3 BOOT Structure for Hydropower Plant.

Source Forouzbakhsh et al., 2006

Because the nature of BOOT projects restricts investors from removing their equity when they please, they generally assemble a large consortium of investors, including state-backed banks that attempt to spread their risk exposure. The commercial viability of the project needs to be carefully assessed by the project financiers as they provide the bulk of investment and have limited recourse to recoup losses should the project fail. While BOOT projects should encourage careful investments, opportunities for investors to profit through construction or service supply may incentivise investments with weak returns. For example, Morris (1997) details a BOOT case in Australia where a private company published misleading revenue estimates from the Melbourne Citylink Project to attract investment.

Furthermore, risk may be poorly understood by investors. This risk includes political instability and risk associated with complex projects such as hydropower. Handley (1997) claims that governments, particularly from developing countries, have been encouraged to absorb risks and provide private sector guarantees such as supplying security, water flows, fuel, or electricity. These risks are rarely adequately costed. The complexity of projects further results in the possibility of risks being undervalued, overlooked, or misidentified. In developing countries, risks may be further exacerbated by poor quality data or baseline studies. For example, hydropower projects that rely on hydrological data to predict flow rates and project viability may need to extrapolate conclusions from limited baseline data also affecting environmental and social impact mitigation measures. A political ecology analysis demonstrates that In Laos mechanisms within the state empower actors who are involved in hydropower development and create incentives for the risks of BOOTs to be undervalued or overlooked. As will be discussed in the Houay Ho Dam case below, the GoL took on this investment despite its high economic costs.

The risks associated with BOOT hydropower investments can quickly translate into significant environmental and social impacts. A consultant company owner working during the 1990s stated that,

> "The rush of development that followed the introduction of the IPPs and BOOT models was a disaster in terms of environmental and social impacts. The dams we were asked to work on did not even have sound engineering behind them. In most cases our environmental and social assessments were ignored." (PS11, 2011)

Another consultant went further, explaining that, "By forcing the country to open up to private investment the WB and the ADB basically sold Laos out from under its own feet" (PS9, 2011).

In Laos, the BOOT model was promoted by a neo-liberal agenda that emerged in the 1990s from global actors such as the WB, the ADB, the United Kingdom, the United States and the private sector (Levy 1996). The purpose of introducing BOOT was twofold: first, to encourage expensive development projects that were out of the reach of developing states thereby reducing poverty and integrating nations into the global market economy, and second, to reduce the exposure of the developing country economy to the risks of large infrastructure projects (Levy, 1996).

BOOT projects have also impacted the scale of hydropower development. Using a political ecology approach, Bakker (1999:225) posited that BOOT, private sector led projects have had "a tendency to favour large-scale, capital intensive projects over smaller-scale initiatives" leading to "a different prioritization of hydro projects than that which may have been determined by the Mekong River Commission or Government planning agencies." Evidence of this can be seen by the number of MoUs signed by the GoL in Table 6-2. Only five out of 23 MoUs were for hydropower

projects under 100 MWs. Larger projects, however, come with increased complexity and diverse risk, including, engineering, financing and social and environmental impacts. They also create larger opportunities for corruption through large complex contract processes.

With the Asian Financial Crisis of 1997 many projects outlined in Table 6-2 were placed on hold or scrapped (PS14, 2012). This period gave the GoL some breathing room to develop its capacity. Recognizing the lack of capacity within the GoL to regulate the private sector investment, and as part of their new role as knowledge developers, the WB and the ADB set about investing in a number of initiatives to improve laws and polices surrounding hydropower development.

Many of these laws came with the start of the development of the Nam Theun 2 (NT2) Dam in 1999. As discussed in previous chapters, the NT2 is currently the largest dam in operation in Laos. With the development of the Dam, the World Bank helped the GoL prepare its current EIA regulations and Environmental Laws and develop the contractual requirements to export electricity to neighbouring countries. Since 1999, seven of the ten laws regulating hydropower development have been passed. A summary of these is included in Table 6-3.

Table 6-3. Summary of Impact Assessment Law and legislation in Lao surrounding hydropower

Year	Laws and legislations	Key agency
National policies and guidelines		
2010	"Decree 112/PM Regulation on Environmental Impact Assessment" • This policy requires significant investment projects operating in Lao to prepare an EIA, including the assessments of impacts and protection of affected people.	WREA

2009	"Decree of the President on the promulgation of the Environmental Protection Law No.09/PO" • This specifies necessary principles, regulations and measures for managing, monitoring, restoring and protecting the environment.	President's Office
2007	"National Policy on Environmental and Social Sustainability of the Hydropower Sector in Lao PDR No.561/CPI" • This emphasizes the requirement of EIA reporting and Environmental Management Plans (EMP) for all large hydropower projects.	CPI, Ministry Of Planning and Investment (MPI)
2005	"Regulations for Implementing the Decree on Compensation and Resettlement"; and "Decree 192/PM on Compensation and Resettlement of the Development Project" • These documents refer to social impact assessment (SIA) to ensure that people affected by development projects are compensated and assisted to improve their livelihoods and living standards.	MEM and Prime Minister's Office
2003	"Environmental Standard Management for Electricity Projects No.0366/MIH.DOE" • This refers to details of environmental Screening for the EIA process.	Department of Electricity, Ministry of Industry and Handicraft (MIH)
2002	"Regulation on Environmental Protection and Management"; and "An implementation decree for the Environmental Protection Law" • These emphasize that all projects that have an impact on the environment, including social impacts, require a completed environmental assessment process prior to approval.	Department of Electricity, MIH
2001	"Regulation on Implementing Environmental Assessment for Electricity Projects in Lao PDR No.447/MIH" • This policy guides implementation of environmental assessment requirements and procedures.	Department of Electricity, MIH

2000	"Regulation on Environmental Assessment No.1770/STEA" • This refers to environmental assessment procedures and requirements for all development projects in Laos.	STEA, Prime Minister's Office
1999	"Environmental Protection Law" • This law requires all development projects that have the potential to affect the environment to prepare an EIA. The law also contains standards regarding the timing of environmental assessment requirements within the project cycle as well as the content and formatting of the EIA.	National Assembly
1997	"Electricity Law" • This law provides the basis for the environmental requirements for hydropower development. It requires dam developers to submit environmental and social studies and management plans, and that an EIA be prepared for all hydropower projects.	The Hydropower Department, MIH
1997	"Land Law of 1997" • This law provides the legal basis for allocating land and awarding deeds and titles for resettled people in connection with hydropower development.	The Ministry of Agriculture and Rural Development (MARD)
1996	"Law on Water and Water Resources" • This law seeks to ensure sustainable use of water resources and establishes requirements for the preparation of an EIA for any large-scale water project prior to the development of the project.	The Water Resources Committee under the Prime Minister's Office
International policies and guidelines		
2010	"Strategic Environmental Assessment (SEA) of Hydropower on the Mekong Mainstream" • This policy is an instrument assisting and facilitating regional and national level decision-making on mainstream dam construction on the Mekong River.	MRC
2006	"Policy on Environmental and Social Sustainability"	IFC (WB Group)

	• This policy is a sustainability framework comprising eight Performance Standards that provides guidelines on doing business in a 'sustainable way'.	
2002	"Environmental and Social Safeguard Policies" • This policy strengthens the sustainable development framework for the WB to ensure that environmental and social issues are considered and managed in the decision-making and planning of development projects.	WB
2002	"The Environmental Policy" • This policy was added as a further safeguard to require all ADB projects to prepare a full comprehensive EIA, including the environmental and social soundness.	ADB
2002	"Safeguard Policies: Involuntary Resettlement (OP/BP 4.12)" • This refers to procedures that seek to avoid or minimize involuntary resettlement as a process of development projects.	WB
1999	"Safeguard Policies: Environmental Assessment (OP/BP/GP 4.01" • This policy requires Environmental Assessment to be undertaken for all supported projects (including hydropower projects) to ensure that they are environmentally sound and sustainable, and to improve the basis for decision-making.	WB

Source: WB, 2011; ADB, 2009; Porter and Shivakumar, 2011; IFC, 2012; King et al., 2007; ICEM, 2010; Sadler et al., 2000; King et al., 2007.

As will be discussed below and in Chapter 7, mechanisms within the state have allowed powerful actors to circumvent these new laws and policies and proceed with developments regardless of their social and environmental costs. These new laws and policies also did little to improve capacity issues. A 2003 report from the ADB stated that, ''the Government's capacity to implement large-scale complex hydropower projects still remains a major concern" (ADB, 2003:3). A 2004 report from the WB also cited "a lack of implementation capacity" as a serious concern within the GoL (WB, 2004: 8).

From 2000, with the passing of the Asian Financial Crisis, private sector investment in hydropower development rapidly increased. At the time of writing, all of the dams planned, proposed, or under construction and that are larger than 50 MW involve some form of private sector investment. Although private sector investment can support strong social and environmental protection and responsible engineering, a number of developers have taken advantage of the mechanisms within Laos to circumvent the environmental and social protection laws and policies.

Foran et al. (2010) study into EIAs and private sector investment in the Mekong Region found that Laos had a serious lack of capacity and authority within Government agencies to sufficiently regulate EIAs and hydropower development. A consultant working on current hydropower projects stated in regards to Government capacity that,

> "The way EIAs are reviewed is that they are split up and different departments and people get different sections. So, the capacity of the department to appraise them is limited. Also the language used in the EIAs is English and very technical. Because EIAs look professional, they are assumed to be, but the content is seriously lacking. Some are even cut and pasted from other projects, such as mining." (PS12, 2012).

This lack of authority within the bureaucracy to enforce laws and policies is evidenced by its institutional position. For example, the Lao Department of Environmental, Social Impact Assessment (DESIA) was established in 2008 within Water Resource and Environment Administration (WREA) to review EIAs. WREA sits under the Office of the Prime Minister, but is not a Ministry and therefore lacks any power to direct or enforce other ministries or project developers to follow environmental or social protection standards (Frankel, 2010). Although the WB has been supporting the Department of Environmental, Social Impact Assessment (DESIA) under WREA, it

suffers from “a lack of staff, funding and a complete lack of experienced staff” (PS13, 2011).

The lack of capacity to evaluate hydropower developments and risk assumptions extends beyond environmental ministries. A lawyer working for hydropower developers on concession agreements in Laos and around the world stated that “to me it just seems tragic that the country is signing these things. It leaves them open to a whole range of litigation if there are any problems, including changed water flow regimes” (HL1, 2011).

The shift to the BOOT model and private sector investment has also empowered the existing mechanisms within the state such as weak transparency. Hydropower development agreements between the private sector and the Government have been subject to intelligence property rights, commercial-in-confidence, and a host of other legal rules that protect the competitive interests of the private sector. These private sector rules have restricted Government influence on developments, decreased transparency, and further entrenched lines of exclusion and inclusion in an already highly politicized decision-making environment. The influence of these private sector norms on transparency is evidenced in a WikiLeaks cable from 2008,

> “A number of NGOs have previously complained about the Government's [of Laos] refusal to abide by its own policy. When questioned about the policy, Mr. Seumkham Thoummavongsa, the Deputy Chief of Social and Environmental Management at the Ministry of Energy and Mines, appeared unaware of the national policy promoting hydropower transparency, and claimed that EIAs were private company documents.” (Wikileaks, 2008).

The influx of private sector investment and the BOOT model in Laos have had significant implications on how hydropower is developed and planned across the

country. The modes of private sector investment have used mechanisms within the state to exploit a lack of capacity in the bureaucracy where the laws and policies regulating hydropower development exist. The weak Government capacity has also empowered the political, economic, and social structures and mechanisms within the state. The second half of this chapter will use grounded case studies to analyse how mechanisms and structures within the state have allowed hydropower development to be built in ways that ignore its social and environmental costs.

6.5 Impacts of Mechanisms on Hydropower Development and the Impact Assessment Process

The second half of this chapter uses a political ecology approach to analyse case studies across Laos to provide specific, grounded evidence of how the meso-scale mechanisms analysed in the first half of this chapter influence hydropower development, the IA process and social and environmental impacts. Special attention will be paid to the impact of these mechanisms on hydropower's socio-ecological ramifications.

The case studies presented below were selected due to their prominence and the availability of data. Of the ten existing dams in Laos over 50 MWs, data were available for six case studies including: the Nam Theun 2 (NT2), the Thuen Hinboun Dam, the Thuen Hinboun Expansion Project, Houay Ho, Nam Mang, and Nam Leuk.

6.5.1 The Nam Theun 2

The Nam Theun 2 (NT2) began operation in 2010 and cost $1.5 billion to construct. It is owned by the Nam Theun Power Company (NTPC) which is comprised of a mix of shareholders including Électricité de France (EDF) with a 40% investment, Electricity

Generating Public Company Limited (EGCO) Thailand with 35%, and the EdL with 25%. The GoL's share was mainly funded by donors including $20 million from the ADB and the World Bank, respectively. The Dam reservoir is 450 km2 with an installed capacity of 1070 MW of which 95% is exported to Thailand for purchase by EGAT. The annual income from the Project is estimated to be $100-150 million per year.

The Dam involves a complex inter-basin transfer where water from the Nam Theun River is dammed to form a reservoir on the Nakai Plateau (see figure 6-4). The water from the reservoir is then tunnelled through a 348 metre vertical shaft to reach a power station before being diverted into a regulating dam and entering the Xe Bang River and finally joining the Mekong. The Dam required the resettlement of 6,738 people from 17 villages and 1,298 households (Souksavath and Nakayma, 2012). International Rivers has stated that the Dam has caused significant impacts on livelihoods and fisheries of people living downstream and in the protected areas (IR, 2011).

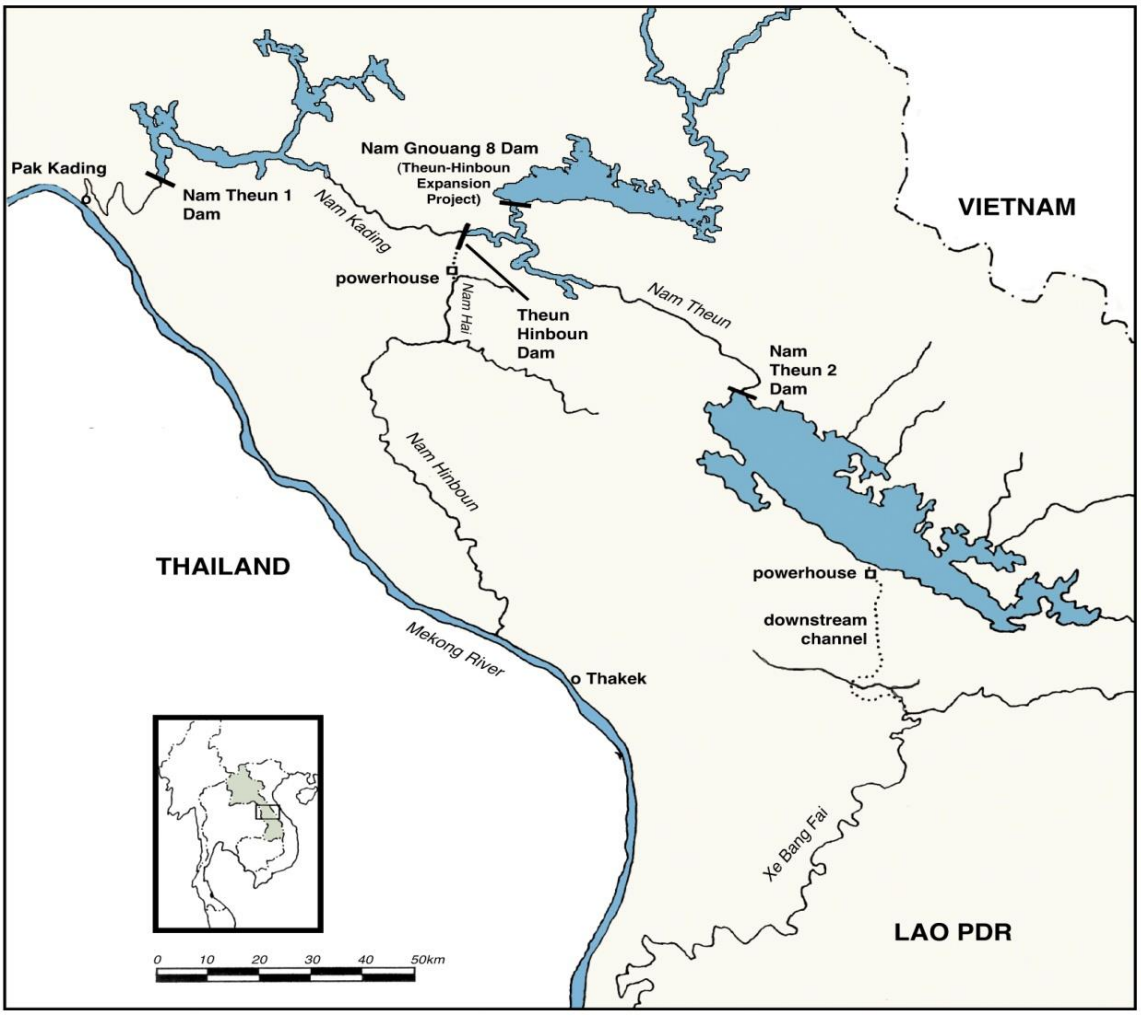

Figure 6-4 The Nam Thuen 2 and the Theun Hinboun dams.

Source: Bank Track (2012).

NT2 is considered a World Bank flagship development. The World Bank states that the Dam objective was "To generate revenues, through environmentally and socially sustainable development of the NT2's hydropower potential, that will be used to finance priority poverty reduction and environmental management programs" (WB, 2005:16). Along with sustainable development, participation was earmarked as a one of the five key themes in the official framework to guide project implementation (World Bank and ADB, 2006). As part of the WB's development of the NT2, the Government of Lao was required to revise and establish new laws surrounding environmental and social protection (See Table 6-3 above) and to participate in a

range of consultation activities (Singh, 2009). The NT2 Social Development Plan emphasizes and defines the issue of 'participation', stating that the development "require[s] that affected groups (especially villages), Government agencies, [locally-based international] NGOs and all other stakeholders be consulted in a meaningful way" (NTPC, 2004: 11).

Mechanisms within the Laos state, however, shaped the nature of participation in ways that protected decision makers. Sing (2009) analysis of the process found that there had been weak participation during the consultation process and villagers were reluctant to speak out against the Project for fear of Government backlash. Meaningful participation was impacted by the tightly controlled nature of the Laos state during the process (Mirumachi and Torriti, 2012). On the other hand, the WB stated that the GoL, with its assistance, developed the dam in a participatory manner closely following its laws (WB, 2005). The WB appears to have labelled the participatory process as excellent in order to legitimise its involvement in the Dam. As one consultant working for the French international corporate EDF at the time explained that, "Contractors said the consultation process was bullshit, but EDF and the World Bank said it was very well done" (PS14, 2012).

With no grassroots civil society extant in the country, the World Bank's participation requirements were scaled to the international level, with INGOs representing local people. This produced a guise for participation and manufactured consent for the Project which enabled both the World Bank and the GoL to meet its objectives while allowing mechanisms within Laos to protect decision makers and allow them to practising business-as-usual decision-making (Singh, 2009).

Mechanisms from within Laos also impacted other aspects of the Project. The NT's cumulative Impact Assessment identified the protection of 4000 square kilometres of Nakai Nam Theun protected area as an important component of the development.

The Nakai Nam Theun protected area provides key rainfall runoff to the reservoir and is an important area of biodiversity in S.E. Asia (World Bank, 2005). Despite the NTPC paying the Government one million dollars a year for protection of the area, extensive logging occurred (IN3, 2011). A regional water resources management bulletin, repeated the problem of logging during the development, stating that

> "A company run by the Lao military, Bholisat Phattana Khed Phoudoi (BPKP – the Mountain Region Development Company), won the contract to log the reservoir area...in addition to the reservoir area, BPKP also logged several areas of forest above the reservoir"(WRM Bulletin 84, 2004: 2).

The NTPC also failed to adequately address water quality and flow releases from the Dam, thereby violating terms of the EIA and social and environmental laws in the country. A former consultant from the Nam Theun 2 gave the following reasons for his resignation,

> "The water quality monitoring was flawed. The NT2 did not address the impacts on the Theun Hinboun – especially the minimum riparian releases that will affect biodiversity in the Kading National Biodiversity Conservation Area. There was no social-economic framework survey of utilization of natural resources in the Xe Bang Fai River" (PS15, 2011).

The impact of mechanisms on project construction and social and environmental mitigation are also evidenced in an internal EDF document. From 2007-2010, EDF was in charge of several social and environmental aspects of the project. A consultant who wrote the *lessons learned report* stated:

> "I found that the Government was generally reluctant to work with the WB and EDF on the social and environmental mitigations. Relations were very tricky behind the curtain. The Government seemed to be focusing on making money from the Project – they were supporting mining and

> logging in the watershed during planning and construction. The *lessons learned report* was too controversial to be released. I got the impressions from my co-workers and those I talked to in the Government that neither would not involve itself in such a complex [from a social and environmental safeguard perspective] project again. There were also definitely some issues of corruption, but less so than with other projects because of the tight scrutiny. On one occasion the Government sent a letter requesting over a dozen expensive cars from NTPC. On another occasion the Government made up a fake census to say 500 buffalo had died because of the NTPC's killing off of grass for grazing. The NTPC paid compensation to avoid a scandal." (PS14, 2012)

Although the Government stated that it would prioritize its $2 billion share of revenue from electricity sales of the NT2 into a national fund for alleviating poverty. As one interviewee who works closely with the Government through the Mekong River Commission stated in 2012,

> "Very little has changed socially since the Dam started producing electricity – everyone is wondering where the money is going, because it sure does not seem to be reaching the people who need it." (MRC2, 2012).

The political ecology analysis of the NT2 case demonstrates that mechanisms from within Laos enabled a WB flagship development dam to circumvent the participation process and create significant social and environmental impacts. Mechanisms allowed the GoL and the private sector to violate the EIA process and profit from the dam through illegal logging. Mechanisms also empowered actors and circumvented the WB promoted participation process.

The mechanisms that impacted the prominent NT2 Dam also influenced the development of the second largest dam in Laos, the Theun Hinboun and Theun Hinboun Expansion project.

6.5.2 Theun Hinboun (THB)

Like the NT2, the Theun Hinboun Power Company (THPC) which operates the Theun Hinboun (THB) Dam and the Theun Hinboun Expansion Project (THXP) has European ownership. The company is owned by Electricité du Laos (EdL) (60%), Greater Mekong Subregion (GMS) Lao (A Thai company) (20%) and Nordic Hydropower 20%. The Government of Lao's share was 90% financed with support from the ADB. The income from the Project is estimated at $60-70 million annually. Completed in 1998, the 220 MW THB Dam is the second BOOT project in Laos (Virtanen, 2006). As with the NT2, the THB is an inter-basin transfer project diverting the Theun River to the Hai and Hinboun Rivers through a six kilometre tunnel (see figure 6-4 above). At least 95% of electricity was exported to Thailand in 2013. The Dam required the resettlement of approximately 6,000 people.

From the outset of the THB project, a lack of transparency and weak enforcement of laws allowed the developers and the GoL to begin construction on the dam while completely ignoring its social and environmental impacts. In 1993, Norplan, a Norwegian consulting firm released the EIA for the Dam stating that "The Project will have significant beneficial environmental impacts. There are no significant adverse sociological impacts as no resettlement is required..." (Norplan, 1993:1-7). This stood in stark contrast to a 1996 report from FIVAS, a Norwegian NGO, which concluded the EIA had been "inadequate and biased in favour of construction" (FIVAS, 1996). Despite the EIA findings, NORAD (Norwegian Agency for Development Cooperation) went on to finance the Project before the environmental studies were finished (ibid).

FIVAS, INGOs and academics subsequently accused THPC of developing the Dam with no environmental baseline studies, no formal compensation policy or consultation with affected people prior to construction starting and an underestimate of costs (Probe, 1998; Hirsch, 2001; FIVAS, 1996 etc.). All these accusations were in violation of Norwegian and Laos law. In response to this criticism, Norplan produced a revised study in 1996, after construction started, that stated that there would be negative fisheries impacts and approximately 6000 people would be resettled by the Dam (Midas and Burapha, 1995). The new study also highlighted that the Hai and Hinboun Rivers would suffer from increased flooding and heavy erosion because of the inter-basin nature of the Project. Norplan recommended stabilizing the river banks before operation began. These recommendations were rejected by the THPC, who instead attempted to manage the impacts through environmental mitigation measures (Barney, 2007). Despite the failings of the first EIA, Norplan was still appointed the consultant in charge of social and environmental mitigation.

Due to mechanisms that removed the requirement of the government and the developer to follow Laos environmental and social impact policies and laws the dam proceeded with an inadequate EIA. After the Dam was constructed, the true environmental and social impacts became evident. International Rivers released a report in 1998 entitled *Trouble on the Theun Hinboun* that documented the loss of fisheries, impacts to drinking water, flooded vegetable gardens and lower water tables, illustrating how these issues were severely impacting livelihoods downstream of the Dam (International Rivers, 1998). The THPC and the ADB initially refused to acknowledge these impacts and in response they hired a fisheries expert, Terry Warren, to look into the allegations. Warren's report (1999) although not released by the ADB identified major impacts on fisheries and fish populations arising from the construction and operation of the Dam (Warren, 1999). Warren (ibid) further identified that the loss of these fisheries was having significant impact on the livelihoods and food security of the affected population.

Perhaps recognizing the seriousness of the impacts, the ADB responded to these reports with promises for a survey to identify fair compensation and investigation of impacts. The survey was conducted by the National University of Laos in 1999. An ADB mission later that year concluded that,

> "THPC continues to deal with the Project's complex environmental and social issues on a largely ad hoc basis. As a result, some major Project-induced impacts have gone unmitigated for almost two years. These include no compensation for lost gardens and virtually no compensation for losses in fish catch. These impacts have had serious negative consequences for the affected villagers" (ADB Report, 1999).

A full three years after the Project had been completed, with no compensation paid to villagers or local people, the ADB and the THPC commissioned Resource Management & Research (RMR) to design a Mitigation and Compensation Program (MCP). The MCP report recommended the establishment of an Environmental and Management Department and outlined a 10 year compensation program costing between $2.74 and $4.65 million. Although the report is considered a significant improvement from previous studies, it has been criticized for being top-down and not offering any local participation in compensation and the heavy allocation of resources to consultants instead of villagers (Shoemaker, 2000). A project report by Usher and Ryder (1997) found that the lack of social and environmental mitigation would allow the Norwegian interests alone to earn approximately 1.8-1.9 million annually over the 30 year contract, or around a 16 per cent profit margin.

Along with significant environmental and social impacts, the economic viability of the dam has been questioned by various consultants working on the project (PS, 17). A consultant who worked on the Project stated that,

> "The Dam has serious engineering flaws and the Government of Laos will be lucky if it is operational in 30 years. Sediment entry into the head-pond area is

> probably between 100 to 400 tonnes per km2 per year over the catchment area. This should have been high on the engineers' and planners' agendas, but it was disregarded. It does not take a rocket scientist to work out that storage losses of this magnitude can quite quickly compromise operations!" (PS11, 2011)

In the case of the Theun Hinboun Dam, Laos' institutional structures and mechanisms including weak enforcement of social and environmental laws, poor transparency and accountability, and weak bureaucratic capacity to understand the commercial viability of the Project enabled developers to push forward a project that increased their profits while ignoring significant negative environmental and social impacts.

In early 2000, the GoL announced that it would proceed with the development of the NT2 Dam upstream of the THB Dam. Recognizing that the construction of the NT2 upstream of the THB Dam would significantly reduce its operating capacity, the THPC quickly announced the construction schedule of the THXP.

6.5.3 The Theun Hinboun Expansion Project (THXP)

The THXP is a 70 metre high dam upstream of the THB Dam. It was built for a cost of $665 million with funding from the Export-Import Bank of Thailand, ANZ Banking Group (Australia), BNP Paribas (France), KBC (Belgium); and four Thai banks, including Bank of Ayudhya, Kasikorn Bank, Siam City Bank and Thanachart Bank (International Rivers, 2009). The Project is owned by EdL, the Norwegian state-owned energy company (Statkraft), and GMS Power of Thailand.

The Dam has been built on the Nam Gnouang River, about 27 km upstream from the THB. The THXP created a reservoir covering an area of 105 km2 which acts as a

storage dam, adding 220 MW of capacity to the THB. THPC also built a 60 MW power station at the expansion project site (see figure 6-4). This brought the total installed capacity of the two dams to 500 MWs. THXP doubles the amount of water released into the Hai and Hinboun Rivers downstream of the THB. The THXP displaced approximately 4,800 people and negatively impacted another 48,441 people (International Rivers, 2008).

For the construction of the THXP, the THPC was keen to avoid the controversy surrounding the impacts of the Theun Hinboun Project. An official from the THPC stated in 2010 that "We are following international environmental and social best practice mitigation measures for this project" (IN2, 2010). This commitment to best practice is emphasized in the *THPC Inception to 2010* report that states "From the start of planning, THPC has been committed to the highest standards of social and environmental mitigation" (THPC Report, 2010).

In 2004, the THPC hired Resource Management & Research (RMR) to conduct the first EIA of the Project. RMR submitted an incomplete EIA to the THPC in 2006, stating that after two years of extensive study they found that the downstream impacts of the THB had still not been adequately addressed over the eight years of its operation. They further stated that the construction of the THXP Project would seriously amplify these impacts. According to a consultant for RMR:

> "We found that the THB Dam was causing serious social and ecological impacts downstream. The company's reports were downplaying these and the mitigation measures were inadequate. We realized there was no way the Dam should move forward until these issues were addressed." (PS16, 2011)

The THPC dismissed this EIA as being too detailed (PS17, 2011) and went on to hire Norplan to develop an alternative EIA. Within one year, Norplan had developed an EIA dismissing the environmental and social impacts outlined by RMR's EIA. Norplan's EIA also dismissed the RMR EIA's concerns about leakages and unstable geology in the reservoir area. A consultant for Norplan stated that "The RMR EIA was completely inaccurate. It recommended a number of unnecessary and costly mitigation measures and highlighted completely unrealistic risks. It was dismissed by THPC and we were brought in to do another one" (PS17, 2011).

The owner of RMR, Murray Watson, published an open letter on the company's website and sent a copy to International Rivers. The 2007 letter details Watson's belief why the EIA was rejected, explaining that the Dam would most likely devastate fisheries, prolong floods, and create rice crop failures with severe negative impacts on local livelihoods and ecosystems. The last paragraph of the letter sums up Watson's view of the Norplan EIA and the potential environmental and social impacts as follows:

> "The seriousness of these [project] consequences has not been properly presented in the Norplan EIA, which does not meet professional standards expected of scientists. The Norplan EIA seriously under-estimates the risks of the THXP, and understates or ignores the changes already experienced from the Theun Hinboun Hydropower Project. They are deceiving the Lao Government and enabling their client to externalize costs. The costs of these impacts will definitely seriously impoverish 10,000-15,000 people, probably will moderately impoverish a further 10,000-15,000, and add to existing deficit lines in the national accounts." (Watson, 2007).

Despite this letter, the Norplan EIA was accepted by the developer. The EIA recommended social and environmental mitigation measures approximately $20 million dollars cheaper than the RMR EIA (PS17, 2011). Norplan were subsequently

hired to manage the environmental and social mitigation measures for the Project. Mechanisms within Laos allowed the dam to proceed despite the controversy in the EIA process.

The high profile of the THXP and its controversy has attracted extensive INGO criticism. A report, by International Rivers (2009) entitled *Expanding Failure* details extensive ecological and social impacts caused by the THXP. The report confirmed the findings of RMR's EIA showing that erosion and flooding along the Hai and Hinboun Rivers were causing massive impacts on fisheries and food security for approximately 30,000 people downstream. A consultant who worked on both the NT2 and the THXP stated:

> "Neither project was designed with adequate engineering to convey the power station discharges to channels of sufficient capacity to absorb the consequent hydraulic and ecological changes without significant social and environmental damage. I do not think that any of these inter-basin transfer projects would be allowed in countries with strong environmental and social protection laws. Theun Hinboun and Nam Theun 2 are diverting rivers into different basins. It is the only way to make real money from hydropower on the tributaries, but the River is only designed to handle the hydrological process of that River. When you transfer a river to a new basin the hydrological pitch points cannot cope with the new flow. It destroys the new basin and its fisheries." (PS8, 2011).

Corruption was also a factor in the Dam's construction. A former senior employee from the THPC stated:

> "We tried to keep corruption under control with the Project, but there were issues. I remember the deputy governor used money for a community council to buy a new car. No community council ever emerged. It seemed to me that the Government was like a black hole. They were happy to take responsibility

> for project activities and the associated funding for social schemes, but nothing would ever occur." (IN1, 2011).

Mechanisms that enabled corruption, weak EIAs and the NT2, THB and THXP project to be built ignoring Laos and international laws designed to protect the environment and local people also impacted basin planning. The construction of three dams (NT2, THB and THXP) draining into the same river basin demonstrated a lack of planning from the Government and increased risk for downstream inhabitants. In 2011, this almost caused a disaster in the Nam Theun Basin. Due to heavy rains that year, the NT2 Dam was required to release a large volume of water. According to a senior employee at the downstream THPC, "we were only given 20 minutes warning about the water release from the NT2." (IN3, 2011). In response to this the THXP Project stopped releasing water from its Dam, so that the downstream flow from the THXP would not combine with the release from the NT2 and overwhelm the THB Dam. As the upstream THXP Project began to rapidly fill up, all the engineers were concerned whether this newly-constructed dam would be able to take the pressure. As a senior employee stated, "We really just crossed our fingers and held our breath" (IN1, 2011). Although the THXP Dam held, this incident provides anecdotal evidence of how mechanisms within the state can have potentially disastrous impacts on local people and the environment.[7]

Western actors are often more accessible to INGOS and academics because of their strong commitments to environmental and social protection and the principles of transparency and accountability that they must adhere to in democratic countries. A number of smaller or regionally-funded dams, however, have not attracted the same criticism or analysis as the NT2, THB or THXP. As one consultant working for Ministry of Energy and Mines stated,

[7] Rumours from consultants working in the region are that MoUs have been signed for other dams upstream of both the NT2 and the THXP.

> "International Rivers, for instance, attacked Theun Hinboun and Nam Theun 2 relentlessly because they had the soft underbelly of multilateral agency involvement, an important factor in making the projects beneficial, but largely ignored the more rapacious developers because there was no one to lobby who would listen" (PS8, 2011)

6.5.4 Houay Ho

The political ecology analysis of the Houay Ho case shows that mechanisms encouraged the GoL to build the dam despite its weak hydraulic estimates. Mechanisms also enabled the developers to significantly profit from the dam's construction and weak IA process and allowed the project to cause significant social and environmental impacts.

Houay Ho (150 MW) is located in the south of the country (See figure 6-5). It was completed as a BOOT project in 1998 with Daewoo Engineering and Construction Company owning 60%, EdL 20% and Loxely PLC (a Thai development firm) owning 20%. In 1993, the Houay Ho Power Company (HHPC) was established to develop the Dam. EGAT were to buy 95% of the electricity which is exported to Thailand. In 1998, due to the Asian Financial Crisis, shortly after the Dam was completed Daewoo and Loxely PLC sold their shares. Tractebel Electricity and Gas International, a Belgian firm, and MCL, a Thai Firm, joined to purchase 80% of the Daewoo and Loxely's shares for the Dam (including debts), with the GoL retaining the remaining equity (Houay Ho, 2011).

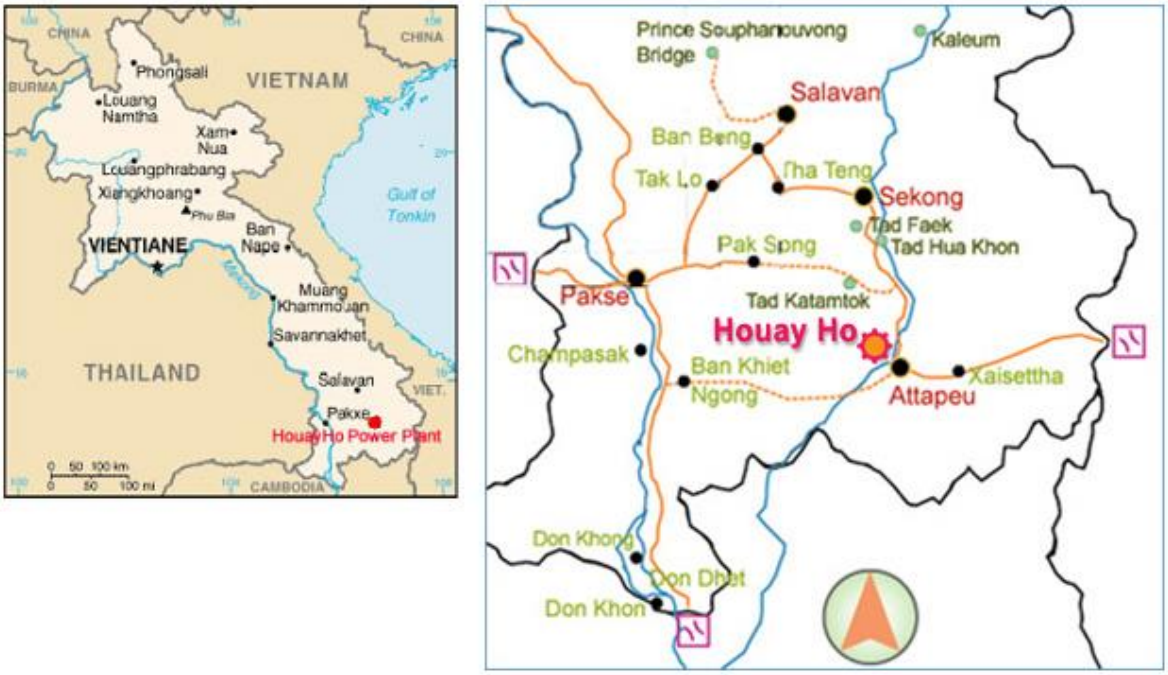

Figure 6-5 Houay Ho Dam location map.

Source: Houay Ho, 2011.

The Dam was sold again in 2002 with GDF Suez buying 60% of Tractebel and MCL's share. In 2009, it was sold again when a subsidiary of GDF, Glow Energy purchased 67% of GDF's shares (ibid). The current ownership structure sees Glow Energy with 67.25% of shares, EdL with 20%, and Hemaraj Land and Development with 12.75% (ibid). Glow Energy is a Thai IPP and Thailand's third largest energy producer supplying 7-8% of the country's electricity (Houay Ho, 2011).

Since its inception, the Houay Ho developers and the GoL have managed to circumvent all the environmental and social protection laws and policies within the country. Houay Ho's EIA was completed two years after construction (Khamin, 2008). The project resulted in the resettlement of 4000 Heuny and Jrou ethnic minority people with inadequate compensation (ibid). For example, only 20% of the land allocated for compensation turned out to be available, as the other 80% was already

in use by other villages (ibid). This resulted in serious food security impacts for the resettled people (ibid). An observer from the former Ministry of Industry and Handicrafts, GoL, was quoted as saying that, "[i]t had a bad smell. We never got to see any studies for the project. I do not think any were done" (Khamin, 2008).

Tractebel, the company that owned the Dam at the time the EIA was completed, denied responsibility for the failures of the Project (Khamin, 2008). INGO pressure led to a complaint against Tractebel in Belgium accusing them of disregarding the Organization for Economic Cooperation and Development's Guidelines for Multinational Enterprises, As a result, they added some weak resettlement improvements, including the building of a school and some wells (International Rivers, 2008).

In 2001, in response to concerns raised by INGOs, the ADB sent Electrowatt-PA Consulting to the Houay Ho site to complete an assessment of Tractebel's resettlement improvements. The report stated that a significant portion of the improvements had not been implemented (ADB, 2003). The report further highlighted a number of problems with the resettlement, including poor water quality and quantity, insufficient land for livestock grazing, illegal logging in the surrounding area and poorly equipped schools and clinics (ADB, 2003). A consultant who assessed the Dam for the ADB stated:

> "The Dam was built on a gold plated construction deal. No EIA, social or environmental mitigations were done. The engineering behind it was flawed. The Government does not make any money until the Project is completed, so they overestimated the hydrology to justify the build and it never filled up. It was then sold cheap." (PS15, 2011).

Interviews with an engineer from the Dam site in 2011 illustrated how the company had not put in place a sufficient water quality or quantity monitoring program which led to significant erosion downstream. Confirming the poor hydrology supporting the construction of the Dam, an engineer stated that “We are going to miss our targets of electricity for EGAT again this year” (PS18, 2011).

The Dam illustrated severe failings in terms of Government capacity, and a complete neglect of Laos’ environmental laws and policies, leading to significant environmental and social damage. A number of studies found that the GoL’s weak capacity and poor legal representations during negotiations resulted in developers taking advantage of the development environment and political and economic mechanisms in the country to profit from the Project (Delang and Toro, 2011).

The Project did not produce any royalties for EdL until 2010 although the Government was required to make annual interest payments of $1.8 million on its $10 million dollar equity from 2000 (Delang and Toro, 2011). Due to the weak concession agreement, Daewoo, the Project developer, made a single payment of $230,000 for social and environmental impacts and left the GoL to deal with any subsequent issues (Delang and Toro, 2011).

Although the Houay Ho Dam had regional and, eventually, international ownership the evidence demonstrates how the developers used mechanisms to inflate the direct monetary benefits accrued from construction and neglected the long-term hydropower potential of the Dam along with its impacts on ecosystem services.

Instances of construction profiteering from private sector infrastructure projects have not been restricted to Lao or to hydropower. Projects ranging from mass transit to hydropower have been studied around the world such as Africa (Foster et al., 2010),

United States (Reisner, 1986) and South America (Trujillo et al. 2005). Opportunities to profit from inflated contracts and construction emerge in areas with strong law enforcement. In Laos, these opportunities have been magnified by mechanisms within the state that have enabled powerful actors to escape any consequences of their actions. The political ecology approach further demonstrates how mechanisms create significant negative social and environmental impacts in hydropower development. In the case of Houay Ho, neither Daewoo nor Loxely PLC had much experience building large dams (Delang and Toro, 2011). With no Environmental and Social Impact, and inadequate engineering, the Dam was sold four times in the 11 years following its construction. The following two case studies present further evidence of the power mechanisms have to influence hydropower development and the IA process and to protect powerful actors while the environment and local people absorb the negative impacts.

6.5.5 Nam Mang 3

The Nam Mang 3 Dam is a 50 MW dam that began operation in 2004. The Dam is located 80km North of Vientiane in the Nam Mang Basin, a basin that currently has six dams in operation and four planned on its tributaries (see figure 6-6). The Dam was constructed by China International Water and Electric Corporation (CIWEC) for a cost of $63 million. The Dam is a GoL-owned BOOT Project with a loan from the Export and Import Bank of China. CIWEC owns 80% of the Dam and EdL has a 20% stake (EdL, 2006). Thailand has agreed to purchase 95% of the electricity from the Dam with 5% to be used domestically. The Dam reservoir filled an area of 10 square kilometres and required the relocation of two Hmong villages made up of 166 households and approximately 700 people (RMR, 2002).

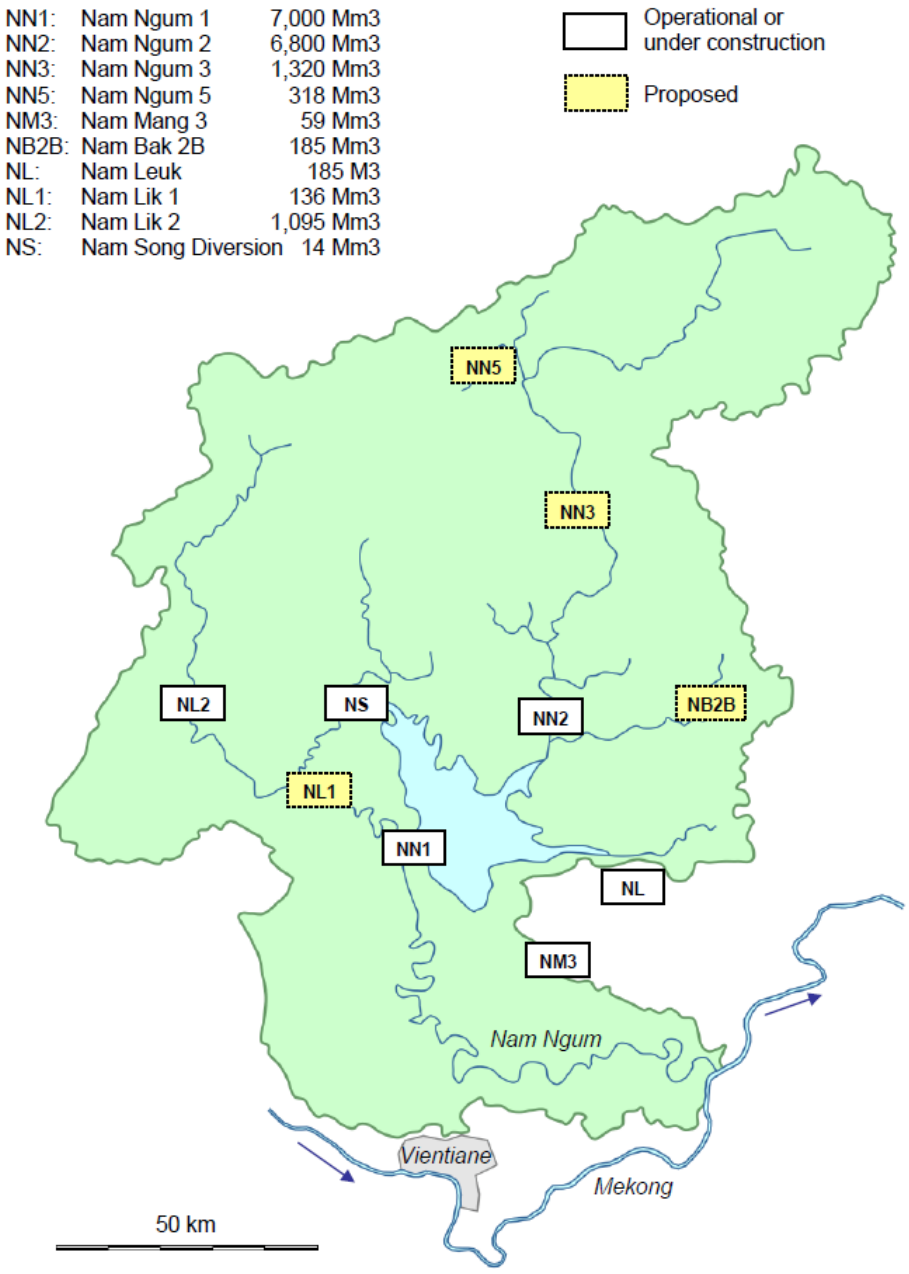

Figure 6-6 Existing and planned dams in the Nam Mang Basin.

Nam Mang 3 was built without any Impact Assessment process (Mainusch et al., 2009). CIWEC did not commit to an EIA because the costs and responsibility for environmental mitigation was left to EdL (RMR, 2000). To circumvent environmental and social laws and policies and save money, EdL applied for Emergency Procedure

status for the Dam, allowing it to proceed to construction without any EIA (Sayatham, 2013).

According to the executive summary of the project's environmental completion report (2004), the project economic viability was solely based on a 1993 Feasibility study carried out by Lahmeyer-Worley for ADB, and later modified by Sogreah engineers and CIWEC. No engineers were appointed to act as consultants and there was no proper engineering design (RMR, 2004).

The Project required the inundation of about 1000 hectares of the adjacent Phou Khao Khouay National Protected Area (PKKNPA) including the construction of roads and labour camps. A consultant working on the Project explained that "The Contractor developed a relationship with the Park authorities which effectively reduced the level of interest of this agency in enforcing the regulations for protecting the PKK National Park" (PS16, 2011). This resulted in extensive illegal logging facilitated by new access roads for the Dam (PS16, 2011).

In violation of Lao laws and policies surrounding the IA pcoress, construction began in 2001, without any public consultations or participatory planning or mitigations. Due to these factors, the Project attracted the attention of the World Bank and the ADB. These agencies applied pressure on EdL, which in turn applied pressure on CIWEC to follow the recently reformed EIA process through the strengthened national regulator, STEA (RMR, 2004).

In 2002, two years after construction began, CIWEC hired consultants to develop an EIA and Emergency Management Plan (EMP) for the Dam. The EIA estimated that 2745 people would be affected and mitigation costs would reach $6.6 million putting into question the financial viability of the Project (RMR, 2002). CIWEC refused to

assume responsibility for the costs leaving EdL to implement mitigation measures. After one year, the implementation measures of the EIA fell short and RMR was then hired by CIWEC to advise and manage the EIA. The 2003 RMR consulting report identifies a lack of capacity within the government bureaucracy to manage the IA process by stating that "there is no doubt that EdL's capacity to manage the Project's social and environmental impacts, and GoL's capacity to monitor and enforce national environmental regulations need to be much expanded". (RMR, 2003:23).

RMR's evaluation of the EMP in 2004 rated 45 out of 58 indicators as either bad-poor with nine indicators as moderate and one as good. This evaluation report examined values such as erosion, fisheries and habitat protection, water quality, and conservation. RMR's evaluation of the social action plan component of the EIA examined 130 indicators including health and safety, property loss and compensation, public health and river bank use. Of the 130 indicators, the evaluation determined that 92 indicators were graded both 'bad' to 'poor', 33 were 'moderate' and only three were considered 'good'.

The report goes on to state that,

> "One factor dominated in creating the circumstances which prevented EdL from carrying out most of the measures of the EIA to reach satisfactory levels of performance. This was the control the Contractor, CIWEC, had over the finance and disbursements, design, works execution and standards of the Project. CIWEC essentially borrowed money to pay itself for the construction works, and EdL agreed to repay the loan with interest over a certain period. A final decisive factor responsible for performance problems was the low level of stakeholder involvement, and the failure of stakeholders and EdL personnel (and their District counterparts) to develop trustful relationships and good faith agreements of mutual benefit, or to negotiate at any noticeable level." (2004: 7-9).

The Nam Mang 3 project's social and environmental impacts have been a consequence of the power that mechanisms in Laos have given powerful actors in hydropower development. These mechanisms have made the IA process a rubber stamp for development that has little or no impact on how hydropower is built.

The lack of EIA process and the circumvention of Laos laws and policies has created significant environmental and social impacts. The dam imposed severe pressure on land, livelihoods and the food security of the 2,745 people. It also directly affected and imposed lesser impacts on up to 15,000 people living in the Nam Mang Basin (International Rivers, 2003). According to the World Bank, the Project will never be economically viable and is being financed as part of a non-concessionary loan from China. These outcomes contradict the Government's attempts to reform its financial sector (International Rivers, 2003). Moreover, a spokesman for the World Bank quoted in the International Rivers Report (2003) estimated that the equipment purchased in China by CIWEC was overpriced by $5 million.

The EIA report went on to make the following observations about mechanisms within Laos and the Impact Assessment process:

> "The EIA process has been enlarged to take on too large a socio-political burden. The regulations require standards of equitability and distribution, and rights to property ownership and economic and livelihood opportunity, for families and groups by gender and ethnicity which are far in advance of the current situation. As targets for society they are admirable, but as a requirement for a developer they almost guarantee non-compliance. Any developer following the regulations would find himself trying to force political changes at rates far greater than is possible without severe social dislocation. He would be at odds with the officials and administrators, and would threaten their livelihoods more severely than his project threatens the livelihoods of rural stakeholders. The EIA process is much too frail an

> instrument to carry these additional purposes. It is in any case doubtful how much social change can be generated from external pressure. More progress could be made with regulating environmental damage, a much more important and long-term topic, with higher potential for success, if the social elements were to be removed, and placed back into the general context of the entire relationship between lenders, investors, donors and the developing country." (RMR, 2004:20)

The statement draws important attention to the limits of the IA process and the power of mechanisms within the state. The rules and policies that emerged through the IA process in Laos are the result of Western-influenced development norms. As Sundberg (1998) argues, the values embedded within the IA process reflect the goals and global environmental agenda of multilateral institutions. The GoL has demonstrated its willingness to support these agendas through the ratification of the laws and policies, but the political and economic mechanisms entrenched within the state have made the implementation of these values impossible. The power of mechanisms to influence development is also wrapped in the historical contexts of hydropower and the types of regional and global relationships that are formed between states, developers and investors (see Chapter 5).

The RMR statement (above) also raises questions about the expectations of private sector developers, particularly with regards to social and environmental mitigation. Mechanisms within the state allow the Government of Laos to control the way its policies and laws are enforced. In this way, the GoL is able to use the environmental and social agendas imposed on them by international organizations as a tool to empower actors and create further lines of inclusion or exclusion in the process.

Laws may be applied or circumvented depending on the whim of the official and bureaucracy that is responsible for them with little fear of accountability or transparency. Developers are also able to benefit from these mechanisms by avoiding the true costs of development. In this way, the political ecology analysis shows that when these international norms are operationalized in hydropower development within the political and economic mechanisms of the state, they legitimise the decision making process and spawn corruption, poor engineering and weak social and environmental mitigation.

A final grounded example of how mechanisms in Laos empower actors over others and shape the hydropower development process is presented in the case of the Nam Leuk Dam.

6.5.6 Nam Leuk

The Nam Leuk Dam is a 60 MW dam build by CIWEC in 2000 for a total cost of $112 million. The Dam is located north of Vientiane in the Nam Mang Basin (See Figure 6-6). The Dam project involves inter-basin water transfers, diverting water from the Nam Leuk reservoir into the Nam Xan River and exporting surplus power to Thailand - that is, until domestic demand exceeded the downstream Nam Ngum Dam's supply capacity. Like the Nam Mang 3, the Dam was constructed in the Phou Khao Khouay National Park (PKKNP). At the time of writing it was solely owned by EdL with financing for the Project provided by the ADB and the Japanese Government.

In 1990, a pre-feasibility study was completed with ADB assistance. Following from this, a 1995 feasibility report was conducted that concluded that the Project was technically and economically viable (ADB, 2004). International consultants were then hired to develop a detailed project EIA in 1995, leading the GoL to ask the ADB for assistance in financing the project. A fact-finding mission from the ADB in 1995 stated

that it was initially reluctant to support the Dam because it had not previously funded a dam inside a National Park, and that the potential economic costs of the Dam appeared to outweigh its benefits (ADB, 2004). In 1996, a second mission to the site by the ADB revised their position recommending the support of the Dam saying that the financial rate of return was sufficient and that the Government had agreed to improved guarantees to improve transparency to private sector investors in hydropower. The contradictions in ADB reports regarding the financial viability of the Dam seemed to have ceased when the Government offered promises to improve its transparency.

The EIA for the Dam promised the following:

> "Unlike traditional hydropower projects, the Project aims not only to provide economic benefits while mitigating adverse social and environmental impacts, but also aims to address the need for long-term environmental enhancement measures. Consequently, the Project will support, through the provision of technical assistance and a sustainable source of funds, improved protection and management of Phou Khao Khouay protected area to reverse current trends toward increasing environmental degradation within the area…." (Nam Leuk EIA Report, 1995: 24-26)
>
> "…Long-term impacts to fisheries in the Nam Mang system, of which the Nam Leuk is a part, are not expected to be significant. The major social benefit will be electrification of Paksane and nearby villages in Bolikhamxay province. Approximately 30,000 consumers will be served. The Project will also provide rural electrification, a health centre, roads, and other services to villages in the vicinity of the Project area. On balance, the Project design provides an acceptable level of environmental protection, serves the country's desire for indigenous and clean power, and contributes to national income." (Nam Leuk EIA Report, 1995: 24-26)

The contractor hired by the GoL to develop the Dam and implement the social and environmental protection measures was CIWEC. Mechanisms within Laos allowed CIWEC to underbid other developers and win the project in a non-transparent way. According to the ADB, CIWEC fell far short of the EIA and engineering objectives of the Project. An ADB report on the dam stated (2004:18),

> "The civil works contractor was responsive in prequalification and tendering procedures—but his performance did not match his well-prepared tender. The contractor performed extremely poorly in management, quality of work, and scheduling. The first six months of construction was a disaster. All activities were behind schedule, and workmanship was poor."

The report concluded that the contractor's bid of $35.9 million was about 28% lower than the consultant engineer's estimate, and 25% lower the second-lowest bidder (ADB, 2004).

A consultant evaluating the Dam for the ADB after construction stated that "CIWEC underbid ADB, got the Project and then occupied the site until they got increased fees. The work they did was unsafe and the conditions of the labour camps were appalling" (PS15, 2011).

In order to encourage the contractor to improve engineering works, social and environmental mitigation, and health and safety, payments were eventually withheld until the contractor promised improvements would be made. The ADB (2004:18) report stated that despite the measures, "the continuing quality of work was far less than satisfactory, and required continuous intervention of the consultant engineer."

The major problems with the Dam can be broken down into three areas: first, health and safety; Second, protection of the National Park, and third, social mitigations. In terms of health and safety, reports from the field showed that the conditions

provided to both the Chinese and Lao labourers were appalling (PS17, 2011). CIWEC was able to save costs and increase profits by never adequately addressing key workplace issues during the construction of the Dam.

As a consultant who visited the Project stated, “The labourers were left to survive from the land. CIWEC provided them with nothing.” (PS17, 2011). The Nam Leuk Construction Environment Report (CER) (2000), prepared by the Ministry of Industry and Handicrafts (now the Ministry of Energy and Mines) states that the Project’s labour camps were well below international standards (CER, 2000). The report concluded that there were no toilets, no rubbish collection and Chinese workers refused to wear any safety equipment. The contractor also refused to supply sufficient food for the workers. This caused them to exploit the National Park for food, firewood, timber, and other forest products (CER, 2000).

Like Nam Mang 3, the Dam was built within the PKKNPA, a key area of biodiversity north of the Vientiane. The Park was identified as important to the hydrological sustainability of the Nam Mang Basin and prioritized for protection. As part of the Project’s commitment to protect the Park, a component of the EIA stated that 1% of electricity revenue generated from the Dam would be used to fund the protection of the Park.

In reality, corrupt practices and nepotism allowed powerful actors to benefit from the Park’s designated revenue while the Dam severely impacted the park’s natural resources. Before construction began, EdL hired the Lao military’s logging company, BPKP – the Mountain Region Development Company), to clear the reservoir. BPKP is the same company that later logged the area surrounding NT2. ADB estimates that the value of timber logged from the area, to be approximately $2-3 million. Apart from the reservoir area the BPKP illegally logged over 1,000 trees inside the Park

(CER, 2000). Due to mechanisms in Laos, the ADB, was effectively funding illegal logging inside a National Park.

ADB's 2004 audit report makes no mention of the money from the logging or whether the BPKP was penalised in any way for breaking the law. Villagers reported that the BPKP logged good quality trees, but reported the timber as being of low quality, allowing BPKP and Government officials to make illegal profits (CER, 2000). Villagers further questioned why Government officials were allowed to benefit from cutting large areas of forest, while villagers are not even allowed to cut small trees for their own use (CER, 2000).

Apart from the illegal logging, the increased access roads into the Park surrounding the Dam caused augmented hunting and provided access to poachers. According to a consultant working on a project for the ADB:

> "The Park authority was likely profiting from allowing illegal loggers and poachers to use new access roads. Almost all of the Park staff had military backgrounds, so they were obliged to help out the BPKP and other interests. NGOs often state that increased access automatically means increased degradation of conservation resources – my experience supports that conclusion." (PS17, 2011)

Although the Project committed 1% of its electricity sales to the Park to improve protection it appears that a lack of transparency in the process allowed this money to be absorbed by Park staff and it did not translate into protection activities on the ground. In 2001, Park staff expenses were $13,000, but in 2002 they unexpectedly increased to $75,000, and then to $80,000 in 2003 (ADB, 2004).

The social impacts of the Dam can be summarized by ADB's 2004 audit which states that "implementation of environmental and social mitigation measures after power plant completion was inadequate" (ADB, 2004:19). After the contractor had failed to implement adequate social and environmental mitigation measures the responsibility for these was passed to EdL. EdL had no budget for any further measures and no monitoring or evaluation occurred (ADB, 2004). A consultant working on the Project stated that, "EdL at the outset of this Project had no experience in mitigation and compensation works. It has almost no funds and no control over budgets." (PS16, 2011).

Social impacts of the Dam were extensive including inadequate resettlement compensation or policies, impacts on aquatic systems, fish populations and water quality. The ADB Audit (2004:52) stated that after the Dam was completed, water quality caused villagers to develop rashes and livestock died.

The report went on to state that fisheries, which were considered abundant before the Dam, had severely declined. Drinking water quality was also impacted. According to the report:

> "The reservoir water shortly after impounding was toxic and smelled of sulphur when released from the depths to the atmosphere—mainly after passing through the powerhouse. The reservoir water also corroded concrete, iron, and steel products, including steel wire on the gabions in the tailrace." (ADB, 2004: 27).

Although reduced water flows and water quality issues were identified as possible impacts in the 1995 EIA, the installation of functioning water pumps and standpipes only came into effect in April 2003, three years after the Dam was completed. According to the ADB Audit, water pumps were installed, but were dysfunctional

because there was no electricity (ADB, 2004). Furthermore, electricity, which was to be supplied to the surrounding villages, never materialized (ibid). Despite these problems the ADB Audit concludes that the Nam Leuk Dam is a 'success'.

The construction of the Nam Leuk Dam provides another example of how mechanisms shaped the IA process and allowed developers, the Government and industry to benefit from hydropower development that causes significant social and environmental damage. Despite the numerous problems with the Dam, the ADB 2004 audit is extremely positive. The approval of the report by the ADB illustrates the influence of a neo-liberal development discourse that promotes hydropower as essential to the growth of nations regardless of its social and environmental costs. By labelling the Dam a success the ADB has legitimised the weak environmental and social mitigation carried out by the Government and the developer. The ADB's label of success also legitimised the GoL and developers complete disregard for laws and policies that the ADB and the WB promoted to help the environment and local people.

6.6 Conclusion

Using a political ecology approach, Sneddon and Fox (2007) argue that the influence of political and economic mechanisms is one of the central challenges to implementing hydropower development in ways that are transparent, participatory, and addresses its social and environmental impacts. In this chapter, political ecology helped to illuminate how meso-scale mechanisms within Laos are influenced by broader political and economic forces and vice-versa. The political ecology analysis also showed how meso-mechanisms influenced the hydropower development, the IA process and the social and environmental imapcts. Through the analysis that was grounded by case studies, the political ecology approach demonstrated that meso-scale political and economic mechanisms have significant negative impacts on social and ecological environmental change.

In Laos, mechanisms such as weak transparency, poor accountability, corruption, a tightly controlled press and weak civil society have combined with rapid private sector investment to shape the IA and hydropower development process and empower actors over others. These mechanisms allow powerful actors to build dams that ignore their social and environmental costs. The neo-liberal discourses of development that drives rapid hydropower in Laos has become a tool for the Government and industry to constitute and articulate power (Peet and Watts, 1996). For example, powerful actors have used market norms, such as confidentiality within private sector investment, to legitimize and strengthen state mechanisms such as weak transparency and lack of accountability. These mechanisms have created corruption and have undermined capacity within the bureaucracy that is responsible for regulating the social and environmental impacts of development. In this way, mechanisms latched on to imported development discourses such as neo-liberal influenced private-sector investment to create a guise of change, but in reality promote business as usual decision making.

Weak bureaucratic capacity creates significant impacts on hydropower development because the bureaucracy is responsible for the regulation and enforcement of the laws and policies in the IA process that are designed to protect local people and the environment.

In Laos, mechanisms nullify the potential of the IA process to mitigate and regulate social and environmental impacts. The IA process is an alien, imported, development tool that has served the interests of international donors such as the WB and the MRC. These interests can clash with the agendas of regional governments who see hydropower as essential for economic development and also as a source of power. Mechanisms within the state create opportunities for developers to circumvent the IA process and profit from hydropower, ignoring social and environmental impacts.

Ultimately, the way the IA process has been deployed in Laos has proved it is too weak to regulate development under the combined weight of state mechanisms and neo-liberal discourses.

The lines of inclusion and exclusion in hydropower development are also impacted by some other unhelpful mechanisms. The GoL subscribes to the principles of good water governance such as participation and transparency, but nullifies the operationalization of these principles by controlling the space in which they have been implemented. For example, the government's National Policy on Environmental and Social Sustainability in the Hydropower Sector and other environmental laws call for a high level of disclosure and participation. Such processes include the public release of EIAs and free prior and informed consultations with local people. Yet these outcomes have never been realized in meaningful ways as the Government tightly controls INGOs, and the freedom of the press and has forbidden grassroots civil society.

The political ecology approach illuminates how mechanisms are also scaled to benefit the powerful. Good governance principles are designed in relation to the state. The WB and the ADB legitimize the GoL's control of civil society by scaling participation at the regional level where only INGOs represent civil society. In this way, while the WB and ADB purport to protect social-ecological concerns and promote transparency, in reality they grant a privileged role to the same actors who hold the responsibility over their implementation and design.

The GoL has been able to use its engagement with INGOs as a form of manufactured consent. INGOs are permitted to engage in the hydropower space. Yet, mechanisms within the State undermine civil society, circumvent meaningful participation and stymie the devolution of power. Through these mechanisms the Government gives

the appearance of engagement, but in fact continues with business-as-usual decision-making.

INGOs submit to these rules in part because it legitimizes their presence and activities in the hydropower space. Their activities in the Region also serve the interest of capital from abroad and are influenced by Western notions of sustainability and development that may be unrepresentative of local level needs. The control of good water governance principles and manufactured consent ultimately subverts prospects for sustainable development in the future by promising procedural norms that create incentives for short-term decision-making.

The impact of this inadequate decision-making is evidenced in the case studies. From large to small scale dams, the evidence demonstrates how powerful actors are able to purport to follow best practice when in fact they develop hydropower that is inefficient or poorly designed and severely impacts livelihoods and the environment. Weak transparency, poor accountability, weak capacity and corruption all emerge and nullify the laws, policies and processes in place to protect the people and environment. The next chapter will apply the analysis of mechanisms and narratives to the controversial Xayaburi Dam, the first mainstream dam in the Lower Basin that is currently under construction.

7 Mechanisms and Narratives Surrounding Mainstream Hydropower Development: The Xayaburi Dam

7.1 Introduction

This chapter uses a political ecology approach to examine the actors, policy statements, narratives and mechanisms that emerged and influenced the debate and process leading up to the official start of construction of the Xayaburi[8] Dam in November 2012. The Impact Assessment (IA) process is used as a starting point for much of the analysis by focusing on the debates surrounding the dam's potential social, economic, and environmental benefits and negative impacts. This chapter answers the following two research questions:

First, what are the key narratives that legitimize the political and economic structures that drive and enable hydropower development in the Mekong Basin at the national and basin scale?

In the case of the Xayaburi Dam, it is hypothesized that narratives significantly shaped the development process and were used by developers as a tool to hide the drivers and enablers of the Dam.

Second, what are the key institutional structures and mechanisms at the national and regional basin scale that have empowered certain actors over others in the Impact Assessment process, project approval and construction of hydropower development projects?

[8] The Xayaburi dam is also spelt Xayaboury. For the purpose of this research the Xayaburi spelling will be retained unless it is quoted differently.

It is hypothesized that in the case of the Xayaburi Dam mechanisms within the state protected decision-makers and enabled the process to proceed, ignoring laws, policies, and regional agreements designed to protect people and the environment.

Chapter 5 used a political ecology lens to critically examine how narratives are constructed to legitimize or construct hydropower development and decision-making within the Basin. It was argued that actors use narratives and policy statements as a tool to justify their involvement in the hydropower development arena and hide their political and economic agendas. For example, the World Bank (WB) and the Asian Development Bank (ADB) have redefined their role in hydropower development by emphasizing a neo-liberal agenda that promotes private sector led hydropower as essential for economic growth. This resulted in the private sector and regional developers moving to occupy much of the funding and development roles. To reposition itself in the development of the Region, the ADB and the WB have created new justifications for their involvement. These justifications include the development and funding of infrastructure such as roads and power transmission lines to facilitate energy trade, and build capacity as knowledge experts.

Chapter 6 used a political ecology approach to analyse the role of political and economic mechanisms and how they impact hydropower development and decision-making in Laos. Mechanisms within the state create spaces of inclusion and exclusion. They allow actors to circumvent the laws and policies designed to protect the state, its people and the environment. For example, in the case of the Houay Ho Dam, the developer was able to build the Dam without any Impact Assessment, and in spite of the fact that the hydrological assessment behind the Dam proved to be inaccurate.

This chapter begins by discussing the early history of the Xayaburi Dam. It then examines the ways in which the mechanisms and narratives within the state empowered and protected powerful actors involved in the Xayaburi Dam's

development. The chapter then explores how regional cooperation influenced the outcome of the process. The conclusion highlights the social and environmental implications of these narratives and mechanisms in mainstream dam development.

7.2 The Lead-up to the Xayaburi

As of July 2013, the Xayaburi Dam is approximately 20% complete. The lead up to the start of construction provides important exemplification of the extent to which narratives and mechanisms, and their hidden agendas, impact mainstream dam development. Mainstream dams have been a consideration of the Lower Basin's development since the 1950s to the present day. Discussions surrounding the construction of mainstream dams in the Lower Basin were first highlighted by the Mekong Committee in the late 1950s (See Chapter 2). In the Mekong Committee's Indicative Basin Plan (1970), four mainstream structures were identified with dates to finish construction: Pa Mong (1983), Sambor and Strung Treng (1985), and Tonle Sap (1987).

Like many development plans in the Basin, these projects were delayed due to conflict, financial costs, and potential social and environmental impacts (See Chapter 2). From the 1980s, tributary dam development began across the Lower Basin with support of the World Bank and the Asian Development Bank and other international investors. Mainstream dams remained on the sidelines for two key reasons. First, The White Report's (1962) analysis of the potential social and environmental impacts of mainstream dam development was influential in delaying mainstream projects until more lessons could be learned from tributary dams (White 1998). Second, under the Mekong Committee agreement, mainstream development was not legally possible without prior approval from all the members. These restrictions led to delays because Cambodia was unable to approve development plans because it was embroiled in the Pol Pot Regime's genocide.

Plans for mainstream dams re-emerged with the tide of private sector investment that began in the late 1990s and, more rapidly, from the turn of the millennium. In 1994, the Mekong Secretariat, with the assistance of Acres International Limited[9], a Canadian consulting company, and Compagnie Nationale du Rhone (CNR), a French hydropower developer, published an influential study entitled *Mekong Mainstream Run-of-River Hydropower*. This study explored potential sites that had previously been earmarked for development. This report attempted to circumvent previous concerns about the potential environmental and social impacts of mainstream dams'. It recommended a series of run-of-river hydropower projects that would "avoid or minimize impacts" (1994:1). The report states that (1994:1),

> "Past studies have shown that economic optimization of possible projects on the Lower Mekong River almost always leads to consideration of large reservoirs with commensurate scale of impacts. Increasingly it has come to be recognized that such large-scale social and environmental effects are unacceptable, no matter how great the economic rewards would be…"

The study identified 12 sites for run-of-river mainstream hydropower dam development. Preliminary design concepts were developed for ten of the sites, with the two remaining sites, Don Shaong and Tonle Sap considered for preliminary screening. The 12 identified sites with their estimated capacity in order of recommended priority include: First priority sites Don Sahong (MW undetermined), Ban Koum (2,000 to 3,500 MW), Xayaburi (600 to 1,200 MW), and Pak Beng (1,000 to 1,800 MW); second priority sites Sambor (2,500 to 4,000 MW), Luang Prabang (1,300 to 2,600 MW), Pak Lay (1,200 to 2,000 MW), and Pa Mong Upper (1,300 to 2,600 MW); and third priority sites Strung Treng (MW undetermined), Chiang Khan (500 to 1,000 MW), and Tonle Sap (MW undetermined) (ibid) (see figure 7-1).

[9] Acres International Limited was debarred by the World bank in 2004 for bribing the head of the Lesotho Highlands Water Project in September 2002.

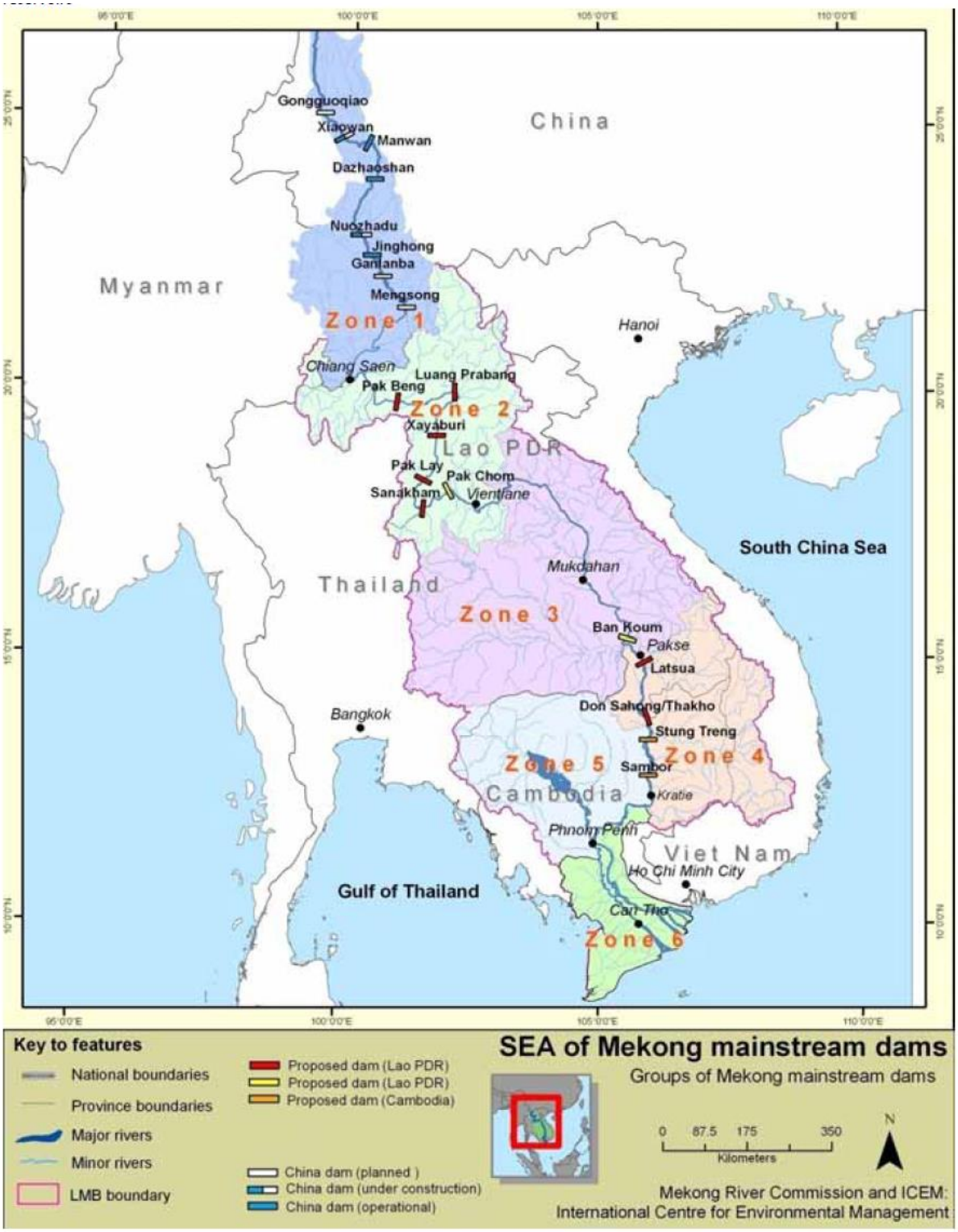

Figure 7-1 The Mekong Basin Mainstream Reservoirs and Dams.

Source MRC SEA (2010).

In order to better understand the potential impacts of mainstream development on fisheries and public health, the report highlighted some key social and ecological impacts and recommended a number of further studies. The report, however, made no mention of potential transboundary impacts or cumulative impacts of the dams, nor did it consider livelihood impacts due to resettlement.

The lack of consideration of transboundary and cumulative impacts is a recurring theme in Lower Basin Development. Tributary dams and the Upper Lancang mainstream dams focus primarily on localized impacts while ignoring or downplaying potential transboundary or cumulative impacts (See Chapter 5). This may be due to the complexity in measuring transboundary impacts across the large Basin, but it more likely due to the politics within the Basin.

A political ecology approach highlights that Identification of any significant negative hydropower impacts would likely open, a country like Laos, to heavy criticism from powerful states in the region. As outlined in Chapter 5, Thailand and China have considerable political and economic interests in Laos' hydropower development. Any report supported by the MRC's members that recognised the social and environmental impacts of dams would jeopardise the neo-liberal led development discourse that is supporting many powerful actors agendas.

Furthermore, identification of any potential transboundary impacts would open up the country hosting the dam to a number of potential legal and economic measures from downstream countries. By focusing on manageable national level impacts, developers and states have been able to scale the impacts of hydropower development within their individual nations where they can be obfuscated by their own political, economic and institutional mechanisms. This scaling of impacts helps support powerful actors agenda's by controlling the debate around the benefits and impacts of mainstream dams. For example, by only examining proposed run-of-river

dams, the study purported that these dams will vastly reduce environmental and social impacts. This emphasis shifts the discussion away from the impacts of mainstream dams to focus on benefits of run-of-river projects, which creates space for powerful actors to bring mainstream dams to the development agenda. Furthermore, this approach creates lines of inclusion and exclusion in the hydropower development process by excluding controversial topics such as transboundary and socio-economic impacts.

Another key obstacle to mainstream dam development was removed during the mid-1990s. With the 1995 signing of the Mekong Agreement, the requirement of all member states to approve mainstream dam development was eliminated. This requirement was replaced by the Prior Notification and Prior Consultation Agreement. The PNPCA guidelines were formally adopted in 2003 (MRC, 2003). The PNPCA has applied to mainstream dam development and inter-basin transfers (MRC, 2003). The notification clause of this agreement requires member states, intending to build a dam on the mainstream, to give the MRC Joint Committee at least one month's advance notice of intended implementation. The notification is designed to allow for distribution of the announcement to other member states (MRC, 2003). The consultation clause requires that the member state intending to build the project must allow at least six months for the other member states to review the project and consult with the state prior to project commencement (ibid). Importantly, this new agreement is not legally binding (see, Chapter 2).

The 1995 Agreement states that "Prior consultation is neither a right to veto the use nor a unilateral right to use water by any riparian without taking into account other riparians' rights." (1995:4). The MRC Agreement and the PNPCA has attracted widespread criticism from academics who point out that the agreement lacks any legally binding measures to stop a member state from unilateral mainstream dam development (Hirsch et al., 2006; Dore and Lazarus, 2009). Although the 1995 MRC agreement was influential at breaking down existing barriers for mainstream dam

development, the onset of the Asian Financial Crises in the late 1990s placed mainstream development on hold. In 2005, after the recovery from the Asian Financial Crisis, mainstream dams once again became a priority for regional states and investors (Hirsch, 2010).

7.3 Narratives and Mechanisms in the Xayaburi Dam Debate

From 2005, a number of factors influenced the renewed push for mainstream dam development and the associated increase in policy statements from hydropower proponents and critics. First, as discussed in Chapter 5, the Mekong Water Resources Assistance Strategy (MWRAS) posited that the Region had large scope for hydropower expansion. Second, the development of the Nam Theun 2 (NT2) in 2005 provided much of the legal and business frameworks such as contracts, laws and agreements to increase investor confidence in large hydropower projects. These conditions coincided with the rapid development of mainstream dams on the Lancang River (See Chapter 2). The development of the Lancang cascade increased dry season flows thereby making mainstream dams in the Lower Basin more economically viable and attractive to investors (ICEM, 2010). Third, an argument began to emerge in the Region that capture fisheries in the Mekong were in a rapid state of decline from over-fishing and poor management (Friend et al., 2009). By removing or lessening the degree to which mainstream dams might impact fisheries, this argument helped diffuse the potential environmental impacts of development and further bolstered the narrative that promoted hydropower development as essential for poverty alleviation and economic growth. Finally, all of these developments coincided with increasing fossil fuel prices, global concerns about climate change and rising economic growth in China and Thailand that created new potential investors (Hirsch, 2010).

As discussed in Chapters 5, narratives are purposely constructed by different actors to support their agendas. Narratives also shape the way hydropower development occurs. In Laos, mechanisms within the state protect hydropower proponents and allow them to ignore critical voices. As per the research questions outlined at the beginning of the chapter, this section will use political ecology to examine how narratives and mechanisms have impacted the development of the Xayaburi Dam.

In 2007, the Government of Laos (GoL) signed a memorandum of understanding (MoU) with Thai company Ch. Karnchang to develop the Xayaburi Dam, the first Lower Basin Mainstream dam. In 2009, in response to Laos' plans to build the Xayaburi, the MRC commissioned the International Centre for Environmental Management (ICEM) to prepare a Strategic Environmental Assessment of Mainstream Dams (SEA). The report process included a participatory element that involved an intensive consultative process with International NGOs (INGOs) and international development organizations (primarily MRC donors). By scaling the report and participation at a Basin level and only involving INGOS and international donors, the report worked within existing political and economic mechanisms within Laos. By diverting participation away from grassroots civil society or local level participation to outside interests the report allowed decision makers in Laos to once again circumvent a meaningful participation process while appearing to meet international norms. This scaling and control resulted in an influential Basin development report being dominated by outside interests, representing Western views of development and environmentalism (Escobar, 1996). By scaling participation at a Basin level, the report not only allowed decision makers in Laos to circumvent meaningful participation, it also protected the MRC and its member states from the need to respond to local level concerns over regional development trajectories and their potential benefits and impacts of hydropower.

The report, which was published in 2010, concluded that mainstream dams would have significant serious and irreversible impacts on fisheries, agriculture and

ecosystems across the Basin. Impacts included large reductions in the flood pulse nature of the river, a 17% loss of wetlands and up to 50% sediment load reduction with significant impacts on Tonle Sap and the Vietnam Delta. The total monetary losses from reduced fisheries and agriculture were estimated at $501.1 million per year excluding the impacts on coastal and delta fisheries, which were not studied (ICEM, 2010). This was compared to gains in fisheries and irrigation estimated at $29.9 million per year.

The report also estimated the potential economic gains of mainstream dam development in terms of export revenue. It concluded that if all 12 projects were completed, Laos would receive 70% of export revenues equivalent to $2.6 billion dollars a year, leading to a significant economic stimulus (ibid). In terms of economic impacts, the report stated that in the short- to medium-term poverty would worsen due to the dams' impacts on food security and livelihoods with more than two million people being affected (ibid). The report concluded by recommending a ten year moratorium on mainstream dam development until further studies of their potential impacts could be determined.

Although the MRC had previously avoided much of the controversy surrounding hydropower development, this report represented a proclamation of the MRC's position on mainstream dams agreed to by its members. The MRC designed the report to provide a balanced, evidence-based account of mainstream development. Furthermore, it was considered significant that the MRC member states including Laos agreed to the findings of the report, especially the recommendation of a ten year moratorium (MRC1, 2012).

In 2010, the MRC also released the second phase of its Basin Development Plan (BDP2). Like the SEA, the BDP2 was a milestone report, defining the MRC's position on hydropower development. The BDP was prepared internally by the MRC and was

designed to “ensure that the use of the basin’s water and related resources contributes to sustainable economic development, with poverty alleviation as a primary goal.” (MRC, 2010:8). The BDP plan evaluated tributary dams and 11 of the proposed mainstream dams. Although both the BDP and the SEA were endorsed by MRC member states, the BDP2 contradicted many of the findings of the SEA report. The BDP2 (ibid:26) stated that mainstream dams will have “acceptable transboundary impact” and fisheries and wetlands will not be significantly affected. Furthermore, the BDP2 discussed a number of energy scenarios that appear to promote mainstream dam development.

An independent panel of experts that was commissioned to review the BDP2 stated,

> “Whilst the SEA draws on the BDP2 scenarios to inform their analysis there are obvious discrepancies in the analysis, assessment and conclusions in the BDP2 and SEA reports. There are currently no results from the SEA findings included in the BDP2 Strategy whilst one of the goals of the SEA was to inform the BDP2 Strategy.” (POE, 2010:25).

The two divergent reports demonstrate a scalar disconnect between the MRC donors and its member states. The SEA report, which called for a moratorium on mainstream dam development for ten years, was prepared by outside consultants. The BDP2 plan was prepared internally within the MRC with influence from individual basin states. A member of a panel of experts hired to review the BDP2 stated,

> “The BDP2 was a much clearer representation of what the member states wanted in terms of development. While the SEA pointed more to the donor wishes. One of the reasons why the SEA recommended a 10 year stay on mainstream dams was so it could try to align its member’s positions with those of the international experts and donors who were stating that the dams would cause large impacts.” (MRC3, 2011).

A political ecology analysis posits that when agreeing to the MRC's BDP2 and SEA reports, Laos and other member states appear to have been using these reports as a device to re-package existing agendas under new labels. It can be argued that Laos used the narrative of the SEA and BDP2 report to demonstrate to donors its willingness to participate in the MRC's activities, but as demonstrated in the BDP2 Plan, the underlying agenda was to develop mainstream dams. Furthermore, the fact that both contradictory reports were approved by all member states indicates the limited level of influence the MRC had in the development of the Basin.

The effectiveness of RBOs' to manage the development of a basin is dependent on financial, technical, cognitive and geopolitical issues (Breitmeier, 1997; Schmeier, 2012). It is common for member states to pursue their own self-interests regardless of the RBO's agendas and policies (Lindermann, 2005). For example, Swatuk (2003) states that on the Okavango River, which is shared by Angola, Namibia and Botswana, the RBO the OKACOM (Okavango River Basin Water Commission) is ineffective because the states are chiefly concerned with national interests and sovereignty. In the case of the Zambezi Rivers, ZACPLAN (The Zambezi River Basin Action Plan) is equally constrained and ineffective because of an "arena of different national interests in which the various riparian states are developing diverging policies and plans that are usually not compatible" (Chiuta, 2000: 153).

The political, economic and securitized nature of hydropower in the Mekong makes it exceptionally difficult for RBOs' to allocate and manage water effectively (Suhardiman, 2011). Suhardiman (ibid) argues that a scalar disconnect exists between national and regional level (i.e. MRC) decision-making processes. This disconnect reproduces itself through the divergent development agendas of the MRC and the Basin States in terms of hydropower. As discussed in Chapter 5, the development agenda of the member states is heavily influenced by a neo-liberal development discourse and political and economic agendas which are often hidden within a narrative of hydropower as development with little negative impacts. The MRC's

agenda is driven by its donors and revolves around IWRM and good water governance principles (see Chapter 6). These divergent agendas limit the MRC's effectiveness in the Region's water governance. This effectiveness is also limited by the structure of the MRC and mechanisms from the Region. Schmeier (ibid) identifies that information sharing, well-functioning dispute settlement mechanisms and sustainable funding, can significantly improve the effectiveness of RBOs. Although the MRC is well funded by outside interests, its dispute settlement mechanisms are non-binding and its information sharing is constricted by mechanisms from within Laos and the Region that entrench weak transparency in hydropower development (See Chapter 6).

The failure of the MRC to regulate Laos' hydropower development is demonstrated in two examples surrounding the release of the SEA and BDP2 reports. First, the GoL already had extensive plans to develop at least five mainstream dams before agreeing to the ten year moratorium in the SEA report. As stated in a WikiLeaks cable from 2008,

> "Over the past year the Government of Laos has signed 5 Memoranda of Understanding with companies from China, Vietnam, and Thailand to develop large dams on the mainstream of the Mekong River where both banks are within Laos. Four of the dams are estimated to individually produce more megawatts (MW) than Nam Theun II, currently the largest foreign investment and largest dam in Laos with an estimated future output of 1070 MW. An additional mainstream dam is estimated at between 600-1000 MW. A sixth dam, planned for a "finger" of the mainstream as it flows into Cambodia, is currently undergoing a review of its Environmental Impact Assessment." (Wikileaks, 2008).

Second, on 20th September 2010, after the MRC released both reports, the GoL submitted a proposal for the Xayaburi hydropower project (Xayaburi barrage) to the

MRC's PNPCA process (MRC 2010b). The ability of the MRC to manage the hydropower development of the Basin is restricted by mechanisms within Laos, including a lack of accountability within the state. These mechanisms empowered the GoL over the MRC in the region's development plans. The GoL was able to agree to a ten year moratorium on mainstream dam development while proceeding with plans to extensively develop the mainstream including the announcement of the Lower Basin's first 'barrage'.

The political ecology analysis demonstrates how the use of the term 'barrage' is an example of the way proponents of the project carefully attempted to promote a narrative of sustainable hydropower development to hide their political and economic agendas. In 2008, a Thai company, TEAM Consulting Engineering and Management Co. Ltd (TEAM), was contracted by the GoL and the developer to conduct a feasibility study and the social and environmental impact assessments of the Xayaburi Dam. The TEAM reports classify the project not as a dam with a reservoir, but as a barrage with a river pond (TEAM 2010). According to the report, because the Xayaburi is a run-of-river project, it is not a dam and therefore it does not have a reservoir. This terminology is part of a broader narrative promoting hydropower as a development with little or no environmental impacts. The term barrage is used to justify the development agendas of Laos and Thailand while emphasising the Dam's minimal impacts. In this way, the dam proponents are able to scale the debate on the project away from its potential transboundary and socio-ecological impacts to that of very localised impacts, which are easily manageable.

According to the Oxford English Dictionary (OED), a dam is defined as "a barrier constructed to hold back water and raise its level, forming a reservoir used to generate electricity or as a water supply." This is in contrast to a barrage, which is defined by the OED as "an artificial barrier across a river or estuary to prevent flooding, aid irrigation or navigation to generate tidal power." The OED further defines a reservoir as a "large natural or artificial lake used as a source of water

supply." Finally, according to the OED, a 'pond' is "a small body of still water formed naturally or by artificial means." The design of the Xayaburi project clearly shows it is a dam that has moveable gates allowing it to hold back and manipulate reservoir levels (MRC, 2011). Furthermore, the reservoir for the project has a capacity of 1.3 km^3 and covers a surface area of 49 km^2 suggesting that it is not a pond. As will be discussed below, in 2012, 'dam' and 'reservoir' eventually replaced the use of 'barrage' and 'pond' when referring to the Xayaburi.

As discussed in Chapter 5, the political ecology analysis demonstrates that narratives do more than hide agendas; they also influence the shape of hydropower development. Defining the project as a 'barrage' with a 'river pond' shaped the IA process. The EIA avoids the word dam in the report instead referring to it as a project. The EIA concluded that because the project is using run-of-the-river technology and fish passages, the environmental impacts will occur in the barrage area with only minor impacts extending 10 kilometres downstream (TEAM, 2010). The EIA states,

> "Transformation of the habitat from a river with rapids into a standing ecosystem due to impoundment will not occur for Xayaburi Hydroelectric Power Project due to run-of-river scheme…fish species which live in running water habitat […] will not be negatively impacted to new conditions… [instead the project will] improve the overall natural fish production capacity." (ibid: 5.11-12).

The EIA stated that the Dam would meet best practice environmental and social standards, goes on to posit that water quality and sedimentation will also not be impacted because of the project's design. The design of the Dam further impacted the type of SIA that was developed. The SIA stated that only 46 villages will be affected by the project. The possibility of impacts extending further upstream or downstream was not considered. The terminology used in the IA studies is constructed in ways that justify the decision-making process and overall political and

economic agenda of powerful actors. The narrative also creates lines of inclusion and exclusion, by attempting to define the space in which the dam will be discussed. By stating that impacts will be localised and minimal, the EIA and SIA removed the requirement for the developers and the GoL to have a large participatory and detailed EIA and SIA process. By pushing forward the idea of the dam as having little or no impacts they also attempted to legitimise their activities and clear a path for quick development of the project.

The importance of IAs to justify proposed projects and meet requirements for foreign imposed best practice is common around the world and not confined to Laos (Alshuwaikhat, 2005). IAs are often viewed as a rubber stamp for developments (ibid). As stated in Chapter 1, IAs are political documents that are often subject to bias and manipulation by developers (Beattie, 1995). The Xayaburi dam IA is no exception. What is contrasting in this case, however, is the degree of bluntness to which the narratives and mechanisms within Laos are able to shape a development process and protect decision-makers despite the potentially significant local and regional impacts.

Although Laos and the developers attempted to control the space and boundaries surrounding the dam's debate, the regional and international reaction to the dam was very critical. Downstream states, INGOs, concerned scientists and international donors all stated their opposition to the project.

Concerns from regional states appeared through the MRC's PNPCA process and in the regional press. In March 2011, the final PNPCA report was released by the MRC with no agreement between its members. Vietnam, Cambodia and Thailand had on-going concerns with Laos about the lack of adequate environmental assessment and public consultation on the process. These concerns included the fact that the EIA only looked at impacts ten kilometres downstream, had weak baselines studies and that

the public consultation process only encompassed 8% of the people to be directly impacted by the project (Lanza, 2010; Stone, 2011).

Concerns from Vietnam and Cambodia also emerged in the regional media. In April, 2011, Lim Kean Hor, Cambodia's water resources minister, sent a letter of protest to the Lao Government calling on them to "halt all preliminary construction and respect the Mekong spirit of friendship and international cooperation." (Economist, 2012). Vietnam was more vocal in its protest, perhaps due to the potential impacts of the dam on the Mekong Delta, the breadbasket of Vietnam. In 2011, the Vietnamese MRC Representative stated "The building of a dam on the mainstream will cause a degeneration of river water, leading to a reduction of fish output in the Mekong Delta." (Tuoi tre news , 2011). The Standing Deputy Minister of Natural Resources and Environment Nguyen Thai Lai asserted that "If built, Laos' Xayabury dam will greatly affect Vietnam's agricultural production and aquaculture," (Tuoi tre news, 2011). In perhaps the boldest statement, Thuong Tan Sang, the Vietnamese President said,

> "Tensions over water resources are threatening economic growth in many countries and presenting a source of conflict especially given the efforts of all countries to step up economic development. Dam construction and stream adjustment by some countries in upstream rivers represents a concern for many countries and an implicit factor affecting relations between relevant countries." (AFP, 2012)

Both Vietnam and Cambodia have also employed a narrative of hydropower a clean energy to justify their development agendas. In the case of the Xayaburi, the downstream position of Cambodia and Vietnam required them to adjust their hydropower narrative to suit their economic and political concerns. While criticising the Dam, both Vietnam and Cambodia were continuing with extensive hydropower development in the Basin. The fact that both Cambodia and Vietnam opposed the Xayaburi Dam while continuing with plans for their own extensive hydropower

development in the Mekong Basin, demonstrates how narratives can be constructed to promote conflicting agendas and the Janus face of hydropolitics.

After the PNPCA process was finished, the United States Government also became vocal about its opposition to the Xayaburi Dam. On 1st December 2011, the United States Senate Foreign Relations Committee requested US representatives at multinational banks to suspend financial support to projects along the Mekong River that were "environmentally questionable" (Lynch, 2011). It also called for continued support of the PNPCA process and for the GoL to improve the Xayaburi's impact assessments. This and subsequent interventions by the US have been led by Senator Jim Webb, who is the Chair of the Subcommittee on East Asian and Pacific Affairs.

The US's involvement in the Xayaburi debate is a component of its active re-engagement in Southeast Asian development. In 2009 the US entered into ASEAN's Treaty of Amity and Cooperation and launched the Lower Mekong Initiative (LMI). As part of this 'rebalancing', the US boosted its military presence in the Region and recommitted to remaining engaged in the Region's economic growth (Chang, 2013). The LMI involves all riparian countries except China. Its aims are to assist countries in the Basin on long-term issues including Government capacity building and general equality (Clinton, 2012). In 2012, following Clinton's visit to the Region, the US announced $50 million in additional funding to the Initiative.

The US stance against the Xayaburi draws from its "[o]wn experience…of the economic, social and environmental impacts that large infrastructure can have over the long-term." (USDoS, 2012). Sustainable development emerged as a US foreign policy concern in the 1980s and 1990s with the growth of the environmental movement and increased public concern about the impact of overseas oil production (Farhar, 1994). As with other actors, the US's concern over the Xayaburi's

environmental and social impacts helps to promote its own political and economic agendas in the Basin.

US Embassy cables from 2008 confirm that the US government was trying to help American companies to sign MoU's to develop the Xayaburi Dam and a number of other mainstream dams (WikiLeaks, 2008). Attempts by the US government to be involved in the Region's development are part of its geopolitical strategy to increase its trade and economic ties to these rapidly developing economies (see Clinton, 2011). Since no US companies were involved in the lucrative construction deals of the Xayaburi Dam or other mainstream dams, the political ecology analysis of narratives shows that the US is using criticism of the process as a leverage point to serve its own agenda in the Region in two ways.

First, the Xayaburi debate provided a conduit for which the US could assert itself into the development agendas of the Lower Basin states. Hillary Clinton and other US politicians have stressed the importance of Asia to the US's economic future (See. Clinton, 2011). By involving itself in the Xayaburi Dam debate, the US is able to use the opportunity to rebuild relationships and appear engaged and legitimized to be involved in the Basin's development. One of the key objectives of rebuilding ties with regional states is to allow US companies to enter the growing markets of the Mekong Region.

This agenda is contradictory to its purported stance on environmental protection. By participating in these emerging markets US companies will require electricity that is slated to come from hydropower development. Furthermore, the US is a staunch promoter of the neo-liberal agenda that is currently pushing forward the rapid hydropower development of the Basin. The US dominated Mekong Committee and the World Bank both played a key role in encouraging Laos to rapidly develop its natural resources (See Chapter 2 and 6).

Second, the US's stance against the current wave of mainstream dam development is part of its attempt to buffer China's geopolitical ambitions in S.E. Asia (Chang, 2013; Le, 2013). Although the Xayaburi does not involve Chinese actors, China is heavily involved in hydropower development in Laos including signing MoU's on mainstream dams. Richard Cronin, from the Stimson Centre, a US policy think tank and research institute, argues in numerous publications that the US must strongly respond to China's hydropower expansion in the Region. He states that China's motives in the Region, which include a disregard for the environmental and social impacts of dams, are counter to the best interests of the US and the Lower Basin States (See Cronin and Hamlin, 2010; Cronin, 2009). Chang (2013) argues that in response to the US's renewed engagement with the Region, China has taken a more assertive view, offering soft loans and economic development opportunities to strengthen relationships. Domestic pressures from the US to expand its economy require that it finds new markets for trade. By involving itself in the geopolitics of the Xayaburi, the US is protecting its interests and ensuring that, like China, it is a key player in the development agenda of the Basin. The motivating factors behind the US's involvement in the Xayaburi demonstrate that it is using the dam to legitimize its political and economic activities in the Basin.

Despite the pressure from the US on Laos to follow the MRC's recommendations and commit to the PNPCA process, member states were unable to reach any agreement on the Dam. Due to the impasse in the PNPCA process, in April 2011, the MRC Joint Committee decided to table the process at the ministerial level. At the same time the GoL claimed that the PNPCA process was now finished. The GoL further stated that it would make a final decision on whether to proceed with the project in October 2011.

The PNPCA process had always been seen as a litmus test for the MRC's legitimacy within the Basin (Molle et al. 2009). In December 2011, the WWF stated that, "As the

first dam project to enter the MRC's formal consultation process, the Xayaburi project will test the effectiveness of the MRC" (Lynch, 2011). Despite the level of pressure on the MRC for the PNPCA to effectively develop cooperation around the first mainstream, the impasse was considered a failure. As a senior official for the MRC stated at the time, "Moving the process to the ministerial level was not something that we ever planned for. As per the 1995 Agreement, no country has a unilateral right to declare the process finished. We expect Laos to keep to this agreement." (MRC4, 2011). Regardless of the impasse in the process, the GoL's decision to declare the process finished is a further example of the ineffectiveness of the organization in dealing with the politics surrounding hydropower development and the power to which mechanisms within Laos protect decision makers from legally binding agreements.

Although the PNPCA process was incomplete by MRC rules, the GoL and the developer were already rapidly proceeding with dam construction. In April 2011, a Bangkok Post Investigative report entitled "Xayaburi Work Begins on Sly" revealed that the GoL and the developer had already begun implementing the project in 2010 and that some villagers had received as little as $15 dollars in resettlement compensation (Bangkok Post, 2011). Pictures from a light plane that passed over the area in May 2011 reveal that construction of power transmission lines to the site, access roads and a camp were already completed (See figure 7-2 and 7-3). A consultant and amateur pilot who took these pictures stated "Judging by the amount of work on the ground, the developer has already invested at least $30 million into the project. I knew then there was no way it would be cancelled." (PS4, 2011).

Figure 7-0-2 Transmission lines from town to site already constructed for the Xayaburi dam

(Source Anonymous, 2011).

Figure 7-3 Work camps and construction for the Xayaburi Dam

The unilateral decision to proceed with the Dam and offer insufficient compensation to resettled villagers further illustrates how mechanisms within Laos empower decision-makers and shape the hydropower development process. The GoL demonstrated a complete lack of concern about NGO, MRC, and downstream states opposition to the dam as well as its own laws and policies. The protection that mechanisms provide to decision-makers allowed them to ignore laws and policies within the country (see Chapter 6).

As Herbertson (2013) argues, the GoL seemed to be able to completely disregard the PNPCA process, the 1995 agreement and its own laws and policies promoting transparency and participation in the IA process.

INGOs and academics also heavily criticized the GoL for proceeding with the dam. The first major report was released by WWF in 2011. This report prepared by Baran et al. (2011) posits that the EIA had a number of failings. They stated that the proposed structure is, by most international standards, not a barrage or run-of-the-river project. They argued that with a height of 49 metres and a width of 930 metres it would be a large dam. They further claimed that the term river pond is inaccurate. They argued that with an inundated area of 49 square kilometres stretching 60 kilometres upstream, the dam would create a medium sized reservoir. The report went on to conclude that the EIA does not meet international standards and that the project would alter water quality, fisheries and sedimentation across a large area both upstream and downstream (ibid).

In May 2011, in response to these criticisms, the GoL agreed to re-examine the Impact Assessment and its compliance with the MRC's policies. The GoL initially contacted Aqua Energie LLC (Aqua), an international consultancy firm that has worked on a number of hydropower projects around the world, to review the project. Aqua declined to do the review due to concerns that they were being misled by the

GoL regarding the EIA and due to concerns that other plans were already in place for future developments. A senior employee with the company stated,

> "We were asked to review the EIA. We refused because we were not convinced we were looking at the real EIA and there were inconsistencies in terms of the technical configuration of the Dam. It did not add up. Whether there was going to be a part two or not?" (PS19, 2012).

The concerns from the Aqua employee demonstrate the power of meso-scale structures and mechanisms within Laos to influence development. The employee, who is has extensive experience in Laos, recognised that the GoL and developers are able to tightly control the hydropower process and circumvent laws and policies within the country designed to protect local people and the environment (PS19, 2012).

In May 2011, the GoL hired Finnish engineering company Pöyry[10] to evaluate the EIA and the Dam's compliance with MRC policies. At the same time Pöyry was hired as the Dam's engineering consultants. In August 2011, Pöyry released its report entitled *Xayaburi Hydroelectric Power Project Run-of River Plant*. The avoidance of the word 'dam' and 'reservoir' when referring to the Xayaburi project throughout the report demonstrates that the GoL and the developer were still trying to manipulate the image of the project to serve their agendas. The report recommended a number of changes to the Dam design to mitigate potential environmental impacts on fisheries and sedimentation (Pöyry, 2011). The report also concluded that the GoL had complied with the PNPCA process. In October 2011, EGAT signed an agreement with the Xayaburi Power Company to purchase electricity from the Dam.

[10] In 2012, Pöyry parent company was blacklisted by the World Bank for unrelated corruption charges and its CEO resigned.

Akin to the first EIA, the Pöyry Report attracted widespread criticism from NGOs and MRC member states. In November 2011, Cambodia and Vietnam stated that they disagreed with the findings of the report and called on Laos to properly address the potential transboundary impacts of the dam (Global Post, 2012). This criticism coincided with the MRC Council recommending the project be postponed until further studies could be conducted (MRC, 2011). In December, the GoL agreed to suspend the project pending further studies on its impacts to be led by Japan (Reuters, 2012).

In January 2012, instead of a Japanese led study, the GoL hired CNR, the same company that produced the 1994 report entitled *Mekong Mainstream Run-of-River Hydropower*, to conduct an independent review of the Pöyry Report. The CNR report was the first to properly label the project as a 'dam' with a 'reservoir'. The CNR report concluded that, "[t]hat the project globally can comply with MRC guidelines and with worldwide hydropower best practices, regarding hydrology, sediment transport and navigation issues, after taking into account proposed improvements in this report." (CNR, 2012:20). One of the main recommendations from the report was to improve sediment flushing. The report also stated that it did not attempt to address "fish migration issues and other environmental impacts." (CNR, 2012:13).

By using CNR, the GoL was able to manipulate the "independent" nature of the review requested by critics of the project. CNR's (1994) study on run-of-river mainstream dams recommended a number of run-of-river projects for the mainstream stating that these dams were able to minimize environmental impacts. Furthermore, the CNR report does not examine the potential environmental or social impacts of the dam. By ignoring the impacts on fisheries the GoL used the report to appease downstream states and MRC concerns while continuing to circumvent its own laws and policies regarding the environmental and social impacts of the project. Furthermore, while arranging for the additional studies, the GoL continued to build

the Dam, demonstrating its lack of concern for the outcome of the PNPCA process and criticism from its neighbours.

7.4 The Build-up to the Ground Breaking Ceremony

In 2012, over 39 Thai, Cambodian, and Vietnamese NGOs with international counterparts protested against the construction of the Xayaburi dam (STM, 2012) (see Figure 7-4). This protest was led by International Rivers (IR) who was extremely critical of the Dam throughout the process. IR stated that the dam would impact the food security and livelihoods of 202,000 people along the River (IR 2012). In 2011, IR formed the *Save the Mekong* coalition to pressure the GoL and Thailand to cancel the Dam. The coalition is comprised of Thai and international members, although Cambodia and Vietnam representatives are also active. Lao members are notably absent. As an INGO representative stated, “this is the first time we have seen a regional campaign by domestic NGOs in the Mekong” (CS1, 2012). In August, 2012, a group of Thai NGOs filed a complaint with the Thai courts over Thailand’s involvement in the Xayaburi dam and the potential impacts on the Basin. Thai civil society also protested at the Asia-Europe Meeting (ASEM) in November 2012 (INGOs such as International Rivers and Oxfam also supported these protests).

Figure 7-4 Thai NGOs protesting against Xayaburi Dam decision

Source: International Rivers, 2012c

The power of INGOs to influence change has been extensively studied. Hardt and Negri (2000:312) state that INGOs are "the newest and perhaps most important force in the global civil society". While Khagram et al. (2002: vii) posit that,

> "Transnational networks, coalitions, or movements … have the potential to transform both domestic political systems and international politics, especially by creating issues, mobilizing new constituencies, altering understandings of interests and identities, and sometimes changing state practices."

Despite these impressive claims, the influence INGOs on Mekong Basin hydropower development has been limited by political and economic mechanisms discussed in and the influx of private sector investment (see Chapter 5 and 6). The private sector is generally wary of any INGOs in the Basin and, unlike the WB and the ADB, has no

obligation to engage or discuss development plans or environmental and social mitigation strategies.

A political ecology analysis illustrates that INGOs have also used their narrative of the Dam as destructive to the entire Basin as a way to legitimise their own agendas in the Region and the hydropower development space. Many of the INGOs in Laos are backed by significant funding from the West and have global networks of employees and supporters. They have been increasingly vocal in regional development and engaged in stakeholder dialogues. INGOs often present a counter-narrative to pro-hydropower development. For example, INGOs reject the narrative of hydropower as 'nation building', stating that it destroys the environment and livelihoods. They present hydropower as a poor choice where the long-term impacts outweigh any short-term gains. Perhaps the most vocal of these INGOs is the California-based International Rivers (IR).

IR's Mekong office contributes to numerous reports and press releases criticizing the development of large-scale hydropower dams in Laos and the Mekong Basin. As a result of these policy statements, IR has been labelled a radical anti-dam voice in the Lower Mekong Basin. For example, Whitington (2012) states that in 2008, although IR first attempted to work with the Thuen Hinboun Power Company (THPC) in mitigating its environmental and social impacts, its agenda was deemed too radical for the THPC board. IR subsequently released a number of reports criticizing the Thuen Hinboun Expansion Project stating that it was "a failure that had unacceptable impacts on the livelihoods and environment of the affected people" (IR 2008:26).

IR's critique of hydropower in Laos expanded extensively from 2010 to 2013 with the announcement and subsequent construction of the Xayaburi dam. A senior IR representative in Bangkok stated:

> "The Xayaburi dam will have devastating consequences for the people and environment of the Mekong Basin. Laos has ignored studies by scientists that show the costs of this dam will outweigh any potential benefits. IR's position is that mainstream hydropower development should be halted for at least 10 years while further studies are conducted. We believe that dams on the Mekong mainstream and its tributaries are being developed in an unsustainable manner" (CS3, 2011).

Many of the policy statements from INGOS criticizing hydropower employed an image of the Mekong River as pristine and untouched. These values serve the interests of international civil society that seeks to conserve and sometimes exclude humans from 'nature' (Cronon 1995; Sunderberg, 1998).

INGOs also frame the Xayaburi (somewhat misleadingly) as the first significant development to affect the Region. For example, a WWF statement argued that,

> "The Lao Government's determination to plow ahead with construction of the controversial $3.5-billion Xayaburi hydropower dam in northern Laos puts the mighty Mekong River's spectacular biodiversity, rich fisheries and livelihoods - vital to nearly 60 million people in grave danger." (WWF, 2012).

The pristine image of the Mekong as one of the world's last undammed rivers was also employed by other INGOs such as International Rivers and Oxfam (see. IR, 2012; Oxfam, 2012).

These interests, however, often clashed with local agendas surrounding development and poverty alleviation. As a Chinese academic scholar stated in a newspaper report entitled *Western-funded green groups 'stir up trouble' in China*, "They [INGOs] tend to over-emphasize the significance of environmental protection, while ignoring Mekong

countries' demand for economic development, threatening the sovereign rights of these countries." (Jing, 2013). The focus on northern environmentalism may be part of the explanation why INGOs tend to avoid direct critiques of domestic political systems. Instead of focusing on challenging the state to redefine itself or issues of social justice they are meeting the beliefs, values and interest of their funding bases.

These policy statements promote a northern environmental narrative of the Basin that serves the interests of outside groups. The economic development of the Region and existing environmental pressures such as over-fishing are rarely, if ever mentioned by INGOs.

There is a growing body of literature highlighting the devastating impacts of capitalist modes of production and consumption trends on capture fisheries and biodiversity around the world including in the Mekong Basin (Campling et al., 2012; Sneddon and Fox, 2012b).

Campling et al. (2012) and Sneddon and Fox (2012b), drawing from Ostrom (1990), use a political ecology approach to argue that the fishers are embedded within existing social, political, economic and environmental systems. For example, in the Mekong Basin, Brooks et al's (2007) study of snake hunting in Cambodia analysed the expanding negative impacts of markets and population growth on water snake populations in the poorly governed and under-resourced Tonle Sap Lake. Brooks et al. (ibid) and Allison and Ellis (2001) emphasise the need to understand and improve social, political and economic institutions regulating capture fisheries, which are essential to the livelihoods of millions of people in the Mekong and around the world (see Chapter 2).

As discussed in Chapter 5 and 6, in Laos, the social, political and economic institutions that regulate hydropower and water resources are shaped and influenced by a neo-liberal development agenda that encourages private sector investment and rapid transitions to a market economy. Hydropower development in Laos can be viewed as a way of moving people into a market economy both through its production of cheap electricity and through its resettlement of natural resource dependant people into towns where they are increasingly connected to state through schools and markets. Mechanisms within Laos also impact the social, political and economic institutions. Corruption, accountability, weak grassroots civil society all contribute to poorly managed fisheries and ecosystem service decline.

Narratives from INGOs, however, tend not to engage with the social, political and economic institutions or the mechanisms that threaten capture fisheries and biodiversity. Attempting to lobby against a hydropower developer is much easier than mounting a campaign against capitalism itself. Instead, the INGO policy statements focus on the environmental degradation caused by hydropower. INGOs create an image of a Basin that is experiencing its first significant threat in the form of the Xayaburi Dam as a way to legitimize their involvement in the Basin's development. As discussed in Chapter 6, civil society is often heralded as being both counter to and autonomous from the state and the market (Pasha and Blaney, 1998). Chandhoke (2002), however, argues that these normative expectations of INGOs often hide the fact that they are formed in and often bound by the neo-liberal and capitalist states and markets in their respective spheres.

By constructing a narrative of INGOs fighting to save the pristine, untouched environment and traditional people of the Mekong Basin they legitimize their presence and activities in the Region. The image they create of the 'last undammed river' may be noble but it is also self-serving. The dramatic image of the Basin they construct helps to raise their profile through international media, and thereby increase support from their primary funders in developed countries (Martinez-Alier

2002). Although INGOs may purport to speak for local people and the environment, their interests may not always coincide with local or regional agendas.

In response to criticisms from INGOs and Vietnam and Cambodia, on 13th July 2012, the GoL announced that it had once again suspended the Dam. Foreign Minister Thongloun Sisoulith stated at a meeting in Cambodia that, "The Lao Government decided to postpone it. We have to do further studies." (ABC, 2012). On 16th July 2012, two days later, the GoL reversed this decision. Viraphonh Viravong, the Deputy Minister of Energy, stated that the construction was continuing on the project (Economist, 2012). This diplomatic doublespeak provides anecdotal evidence of how mechanisms within Laos, such as a lack of transparency and accountability in the country, can shape the hydropower development process.

The GoL also responded to criticism of project by releasing policy statements through the Vientiane Times that promoted its narrative of the dam as both sustainable and essential for economic growth. Many of these policy statements drew from reports about the benefits of run-of-river hydropower to create an image of a dam that will have little or no environmental impacts. In October 2012, for example, the Government stated that the, "Xayaboury Dam will have no transboundary impact: The development concept was to build a transparent dam, meaning that everything that enters the dam can pass through it." (Vientiane Times, 2012). The government further stated that, "A run-of-river dam has the advantage that outflow equals inflow so there is less impact on the environment and the lifestyle of people who live along the river." (Vientiane Times, 2012b). As discussed in Chapter 5, policy statements from the Government also link the dam to a neo-liberal agenda supporting economic growth. For example,

> "The Xayaboury dam is a run-of-river scheme. It means that the input flow is the same as the output flow. It is like having no dam there, so this is

> considered transparent. If Laos wants to escape least developed country status by 2020 this is our only choice." (Vientiane Times, 2012c).

The GoL used the run-of-river label to control the space in which the dam would be debated and to facilitate the decision making process, and to legitimise a limited social and environmental impact assessment process. Although the widespread criticism that the Dam attracted most likely caught the GoL by surprise, it responded in tokenistic ways while continuing to develop the project behind the scenes. The disregard of both its own laws and the MRC process demonstrates how these laws and policies have been ineffective and how mechanisms protect actors. Powerful actors from the GoL are able to wield decisions in spaces that are impervious to the laws and policies that are designed to hold decision-makers accountable (See Chapter 6).

The Western origins of the laws and policies surrounding the IA process, and the criticism of INGOs, and not grassroots civil society, on the project speak to the ineffectiveness of imposing outside agendas on Mekong Basin development. For example, the WB and the ADB encouraged Laos to adopt many of laws and policies to regulate hydropower in order to bring it into Western market economy norms (See Chapter 6). The GoL by accepted these laws and policies on paper because they have been tied to funding and development, but mechanisms within the state have allowed powerful actors to circumvent them.

Late in 2012, rumours of a ground breaking ceremony began circulating. On Tuesday, 6th November 2012, the Deputy Prime Minister was quoted in the Wall Street Journal stating, "I confirm that there is no ground breaking set for Wednesday [7th November] on the $3.5 billion Xayaburi Dam. It is not real. It is only…organizing a small group of media to visit, and some concerned people, scientists and other people." (Otto, 2012).

Yet, on Thursday, the 8th November 2012, the Deputy Minister for Energy and Mines (MEM) stated "We started working on the river yesterday after a ground breaking ceremony," (Bangkok Post, 2012b) (see figure 7-4). This somewhat comical second example of diplomatic doublespeak between Government Ministries in Laos provides further anecdotal evidence of the degree to which mechanisms such as weak transparency and a lack of accountability permeate within Laos and impact hydropower development. The deputy minister for energy also stated that Laos had addressed Vietnam and Cambodia's concerns,

> "We can sense that Vietnam and Cambodia now understand how we have addressed their concerns. We did address this properly with openness and put all our engineers at their disposal. We are convinced we are developing a very good dam." (BBC, 2012).

Figure 7-5 "No ground breaking ceremony".

Source Wall Street Journal (2012).

Although Vietnam and Cambodia were vocal in their opposition to the Xayaburi throughout the process, following the announcement of the ground breaking ceremony neither country released any statements. The silence from both actors on a project that could be significantly harmful to their economies is best explained through the type of cooperation that exists within the Region.

7.5 Regional Cooperation: The ASEAN Way

This section examines how cooperation in ASEAN impacts hydropower development and its social and environmental costs. Within ASEAN, the 1995 Agreement is considered an important cross-border cooperation treaty (Hirsch and Jensen 2006; Dore and Lebel, 2010). Despite the importance of the treaty the ASEAN Way of non-interference in domestic affairs acts as a mechanism to protect decision-makers and create space for developments to proceed despite their significant environmental or social costs.

There is much literature promoting the value of cooperation and the value of cooperating institutions in water management (e.g. Savenije and van der Zaag, 2000). Wolf et al. (2003a) identified that the negative effects of unilateral development, such as a large-scale dam, can be mitigated by the presence of positive regional relations or an effective transboundary institution (see also Wolf et al., 2003b; Yoffe et al., 2004). Zeitoun and Mirumachi (2008), however, usefully demonstrated that the realpolitik of transboundary river management is where cooperation and conflict co-exist, and that cooperation in itself is often used to disguise powerful actors control over weaker ones. As Selby (2003) has pointed out in relation to transboundary institutions along the Jordan River, domination can be dressed up as cooperation.

In South-East Asia, regional cooperation surrounding hydropower is promoted both in the political discourse of Association of South-East Asian Nations (ASEAN) and, as

discussed above, in the MRC and the GMS Programme. This section uses a political ecology approach to examine the regional environment of cooperation's impact on hydropower development. The analysis shows that the regional culture of economically driven water resource development wedded with mechanisms in Laos, including weak transparency, corruption and a lack of accountability, create an environment that discourages change, and entrenches the mechanisms and closed nature of the state. This results in a guise of cooperation that shapes the hydropower development process and enables dam proponents to develop projects, like the Xayaburi, without significant regional opposition despite their potential negative transboundary environmental and social impacts.

The boundaries of state cooperation in South-East Asia prominently appear in regional hydropolitics. Since the 1970s ASEAN member states' have produced a number of cooperative statements and declarations on environmental protection and water resource management (Litta, 2012). For example, the ASEAN Vision 2020, which was signed by all the ASEAN heads of state in 1997 states,

> "We envision a clean and green ASEAN with fully established mechanisms for sustainable development to ensure the protection of the Region's environment, the sustainability of its natural resources, and the high quality of life of its peoples" (ASEAN, 1997).

More recently, the ASEAN Charter, which was ratified in 2008, states that member states will "Promote sustainable development so as to ensure the protection of the Region's environment, the sustainability of its natural resources, the preservation of cultural heritage and the high quality of life of its peoples" (ASEAN, 2008). In 2012, ASEAN member countries also reaffirmed their commitment to sustainability at the Rio+20 Conference.

On paper these statements seem to espouse environmental and social protection, however, analysis of the cultural limits of cooperation in the ASEAN by Jetschke and Rüland (2009) show that rhetoric and reality of cooperation are very different. ASEAN member states continually affirm their commitments to regional cooperation including those surrounding water resource management yet, "they continue to stick to self-interested policies to the detriment of ASEAN's collective interests" (ibid). A tenet of ASEAN development and cooperation has been a commitment to non-interference and non-intervention in domestic affairs (Koh and Robinson, 2002). Middleton (2012) states that "the ASEAN Way" of resolving differences through use of soft power and indirect policies characterized by conciliation and consultation has facilitated relatively stable political relations in the Region, but it lacks transparency, accountability, and the faculty to address urgent, complex or controversial issues, especially those surrounding hydropower.

The theme of cooperation surrounding natural resource management in ASEAN draws from global trends in the commodification of natural resources (Nevins and Peluso, 2008; Hall et al., 2013). As discussed above, private sector investment in hydropower development has empowered meso-scale mechanisms that protect decision makers and influence mechanisms such as confidentiality and lack of transparency in the process. Hall, Hirsch and Li (2011) argue that as a result of a neo-liberal led agenda that promoted distinctive shift since the 1980s towards private sector investment, natural resources are managed in ways that reinforce existing mechanisms in developing countries such as weak accountability, a lack of freedom of the press and tokenistic participation.

The ASEAN Way and the GMS Programme with its promotion of interconnectivity through the Mekong Power Grid, enable a brand of cooperation between the economies of the Lower Mekong Basin that supports rapid regional development that is focused on short-term decision-making with little transparency or participation. In Laos, this push for rapid development is used by developers as a justification to build

projects that ultimately profit from weak social and environmental mitigation requirements.

The externalization of the costs of hydropower development benefits powerful actors such as developers, banks and Government officials. It is justified by the Lower Mekong Basin states through the neo-liberal influenced narratives that characterize hydropower as essential for poverty reduction, flood control, and economic growth (See Chapter 5). For example, by supporting the development of high voltage transmission lines between Lao and Thailand, and between Laos and Vietnam, the GMS Programme has enabled EGAT to develop power projects in Laos to standards that are below those that would be accepted by communities in Thailand (Middleton, 2012). The ASEAN Way, of non-interference places no pressure on Laos to strengthen or enforce its social or environmental policies beyond the signing of declarations and laws. In this way, the ASEAN Way, acts as a mechanism to empower regional decision makers and disempower local people and environmental protection.

This guise of regional cooperation further hinders opportunities for meaningful cooperation over water resources within the MRC. The MRC's lack of control to manage the Basin's hydropower development demonstrates the influence the ASEAN Way has on institutions. For example, the removal of the veto power in the 1995 Agreement and the non-binding PNPCA process limits is characteristic of the ASEAN Way of non-interference. The non-binding nature of the process and the removal of the veto limit the ability of any one member state to halt hydropower developments, no matter the potential negative impacts.

Koh and Robinson (2002) posit that for ASEAN members to meaningfully mitigate the environmental and social impacts of development they must move beyond soft approaches and toward meaningful policies that are enforced across the Region. Mitchell (2001) argues that international and regional context impact the

effectiveness of international organizations. The ASEAN community has been strained by both historical and current foreign policy conflicts. As a result, there is little trust between many of its members (ex. Between Vietnam and China). This lack of trust and the influence of the regional context impede the implementation of meaningful and enforceable policies surrounding hydropower development and Basin planning. Furthermore, both the existing environment of regional cooperation and the ASEAN Way of non-interference encourage and enable regional states to externalise the environmental and social costs of hydropower development in Laos. The externalisation of costs is enabled by mechanisms from within Laos that are empowered to endure and exclude with impunity.

7.6 Conclusion

The start of construction of the Xayaburi Dam has been analysed in order to examine two main research questions. What are the key narratives that legitimise the political and economic structures that drive and enable mainstream dam development, and how do mechanisms within Laos empower actors over others during the IA and hydropower development process.

The political ecology analysis in this chapter and in the preceding chapters has shown how narratives, influenced by a neo-liberal led development agenda, are used by powerful actors as a conduit to promote their political and economic agendas. The political ecology analysis has also shown how mechanisms within Laos protect decision makers and allow them to circumvent the laws and policies designed to mitigate the social and environmental impacts of hydropower development.

Numerous studies have confirmed that mainstream dams would have significant impacts on the Basin's ecosystems and livelihoods (Kummu and Varis 2007; Barlow et al., 2008; Dugan et al., 2010). It is therefore, essential to understand how

mechanisms and narratives shape and influence hydropower development. Sneddon and Fox (2012) argue that mainstream dams are part of the neo-liberal and capitalist vision of the Mekong as a resource, which is promoted through modes of cooperation such as the GMS Programme and the ASEAN community. All of these elements play an important role in shaping the way dams are built, especially how their social and environmental impacts are considered and addressed.

In the Xayaburi case, narratives were used by both proponents and opponents of the Dam as a tool to legitimize their activities. The GoL carefully constructed policy statements and reports around the Dam to suggest that it would have minimal environmental and social impact. By constructing a narrative of a sustainable project, with a 'barrage' and a 'pond' that would have minimal or no environmental impacts, the GoL was able to create lines of exclusion and inclusion in the debate leading up the start of construction. The GoL used the narrative of hydropower as essential for economic growth to legitimise its decision making. Mechanisms from within the state, such as weak transparency and accountability, empowered decision makers and allowed them to circumvent laws and policies designed to protect local people and the environment.

The United States used a narrative of mainstream dams as harmful to the environment to promote its political and economic agenda such as buffering China's influence in the region and strengthening its ties to the rapidly growing economies of S.E. Asia.

The INGO sector constructed a narrative of the Basin as untouched and under threat from the Dam in order to serve its own agenda and legitimise its activities in the region. The INGO sector assumes that it's Western and neo-liberal influenced policies are the right choice for local people. At the same time, policy statements from NGOs

often ignore the social, political and economic forces that are already threatening much of the Basin's ecosystem services.

The ASEAN Way of non-interference was a regional mechanism that empowered certain actors over others in the Xayaburi debate. This mechanisms also empowered meso-scale mechanisms in Laos enabling it to proceed with the development despite downstream criticism from Vietnam and Cambodia.

The value of the MRC and its effectiveness as the regional RBO has been called into question by breakdown of the PNPCA process. The evidence demonstrates that the MRC's influence does not extend to highly politicised issues such as hydropower. The development agendas of the MRC's donors and that of its member states are different. When these development agenda's conflict, the MRC's lack of influence becomes apparent. Nevertheless, the MRC's role in the Basin to bring together stakeholders and provide a window into hydropower development that can be used by international and domestic actors to influence the process should not be overlooked.

Despite INGOs representing outside interests and using the dam to promote their own agenda's, the INGO pressure did have some impacts on the process. The Xayaburi debate marked the first time a regional campaign mobilized to stop a dam. The campaign resulted in a redesign of the project and placed the GoL on the defensive. It did not, however, halt the project. A lack of transparency permeated throughout the process with the GoL repeatedly disregarding its own laws and policies. The fact that the GoL was able to develop the Dam in this way, demonstrates the power that mechanisms and narratives wield within the Region and the degree to which the Government is answerable to the people.

The final chapter in this study summarizes the findings of this research drawing out the key points and their implications on hydropower development in Laos both now and in the future.

8 Conclusion

8.1 Introduction

The study set out to offer a fresh understanding of the drivers and enablers of hydropower development in Laos that ignores its social and environmental impacts. Extensive research has been conducted into Laos and Mekong Basin hydropower development (see Chapter 3). The existing research examining hydropower development in the Mekong Basin has predominately analysed international political and economic structures and their links to local environmental change.

This study aimed to offer new insights into hydropower development by using a political ecology approach to examine meso-scale drivers and enablers, in the form of mechanisms and narratives, and their upward and downward links to international and historical drivers and enablers and local environmental change. Through starting at a meso-scale, the study used the impact assessment process as a window into the non-transparent nature of hydropower development. In drawing together the meso-scale analysis of this study with existing literature, the study provided important new insights and evidence into who stands to win and lose from hydropower development in Laos and why.

The purpose of this chapter is fourfold. First, it briefly recaps the global expansion of hydropower and the importance of Laos and the Mekong Basin as a focal point within this expansion. Second, it summarises the contributions of the study by reviewing the analytical tools deployed including the use of political ecology, the analysis of scale, narratives and mechanisms and the use of the impact assessment process as a unique window into hydropower development. Third, it provides a brief analytical summary of the study by reviewing the research questions. Finally, it discusses the analytical and theoretical gaps and avenues for future research.

8.2 Laos as the Centre of the Mekong Basin's Rapid Hydropower Development

As discussed in Chapter 1, although much of the developed world's hydropower has been realized, hydropower construction in developing countries is rapidly expanding. On 16th July 2013, after a 20 year absence the World Bank's energy strategy announced a new commitment to large hydropower projects (Guardian, 2013). Much of the developing world's hydropower will be built in areas of important biodiversity that are populated by vulnerable natural resource dependent groups. As a source of cheap electricity and income generation, governments often view hydropower as a clean source of cheap energy that can help bring their populations out of poverty and away from a dependence on natural resources.

The Mekong Basin and more specifically Laos are an important case study in the global hydropower expansion. The Mekong Basin is rich in biodiversity and home to over 70 million people, significant proportions of whom rely directly on ecosystems for their livelihoods. It is also currently undergoing enormous social, economic, and ecological changes of which hydropower development is one of the most significant components.

Laos is at the centre of the Mekong's hydropower development. With an estimated hydropower potential of 26,000 MW, the GoL is aiming to bring its installed capacity from 2559 MW to 3856 MW by 2015. This is part of an ambitious plan to rapidly build over 100 tributary and mainstream dams across the country during the coming decades. Hydropower in Laos has significant long-distance ripple effects. These effects are both positive and negative. Hydropower is currently the country's main source of foreign direct investment and export income. It has the potential to fund much needed social services such as education and health care within the country. However, It also threatens to significantly impact the fisheries, livelihoods and culture of the Region (Barlow et al., 2008; Baran and Myschowoda, 2008; Matthews, 2011).

Much of the criticism surrounding hydropower development posits that hydropower will become a resource curse scenario in Laos (Simpson, 2007; Goto, 2011; Jusi, 2011). Natural resources as such are, however, not responsible for 'curse scenarios'. As Karl (1997) points out, it is the institutional, economic and political structures and mechanisms that control how the benefits of natural resources are used that cause problems. Understanding the mechanisms and narratives that drive and enable hydropower in Laos helps to provide lessons learned for not only the Mekong Basin, but other developing countries rapidly currently involved in rapid hydropower development. The next section examines the contributions of the study by reviewing the tools used in the study's analysis.

8.3 Contributions of the Study: Political Ecology, Narratives, Mechanisms and the use of the Impact Assessment Process

This study used a political ecology approach to illuminate the mechanisms and narratives surrounding the impact assessment process that drive and enable hydropower development in Laos at the meso-scale. Political ecology provides a way to analyse critically the power relations at play in the particular economic, political and environmental contexts of hydropower development in the Mekong Basin (See Bakker, 1999: Sneddon and Fox, 2006). The majority of political ecology research that involves case studies has focused on issues at the local scale (Blaikie and Brookfield, 1987; Hecht and Cockburn, 1989; Zimmerer, 2004). Blaikie and Brookfield (1987) and other political ecologists ascribed agency to local people and examined their influence on and influence by macro-level scales.

This study filled an existing gap in political ecology's analysis of scale. Instead of starting at a local scale and examining how international and national politics and

economics are both influenced by, and attract influence from local resources and actors, the study began at a meso-scale. The meso-scale analysis demonstrated that national mechanisms and narratives have significant influence on the international scale and local scale and vice-versa. It further linked these meso-scale mechanisms and narratives to environmental change by analysing how they impact hydropower development.

Political ecology has increasingly focused on narratives and discourses (Robbins, 2004). This study analysed how narratives and discourses surrounding hydropower development are constructed by powerful actors to legitimise and disguise their agendas. The study also demonstrated that narratives are more than a frame of historical, political and economic conditions – they are a driver of change within themselves. Narratives and discourses in Laos have shaped the hydropower development process and the way impact assessments are carried out.

The study analysed the social, political and economic mechanisms that operate at the meso-scale in Laos. Meso-scale mechanisms influencing hydropower development have rarely been explicitly described (see Chapter 3 and Chapter 6). The lack of examination of meso-scale mechanisms may be due to the highly politicised and securitised nature of hydropower development. Hydropower is intertwined with national energy security, billions of dollars of investment, nation building and political power. This study used extensive data collection through interviews, participant observation and fieldwork to directly engage with meso-scale mechanisms and uncover evidence of the degree to which they have directly influenced hydropower development in Laos and the winners and losers of environmental change.

Through case studies, the study demonstrated that powerful actors involved in hydropower development have derived power from the social and political structure of the tightly controlled state. The lack of transparency and weak accountability that

existed within Laos has created and shaped the types of institutional behaviours that have emerged in hydropower development. Furthermore, mechanisms have influenced the space in which civil society has operated – constraining it and creating a form of manufactured consent.

The study further showed that mechanisms are scaled to benefit the powerful. For example, good water governance principles are designed in relation to the state. The WB and the ADB legitimize the GoL's control of civil society by scaling participation at the regional level where only INGOs represent civil society.

Narratives and mechanisms have also shaped the role of actors in the hydropower development process. The World Bank and the ADB have shifted their role from developers to knowledge experts. The private sector has taken the lead in hydropower development. While, INGOs have lost influence and have also tried to legitimise their activities.

A unique aspect of this research has been the use of the Impact Assessment (IA) process as a point of inquiry, and as a lens through which we can view and analyse the narratives and mechanisms driving and enabling hydropower development in Laos. The use of the IA process in the study has proved to be a valuable focal point. The data that has been examined from the IA process has demonstrated that it is one of the only instances when the non-transparent hydropower development process in Laos is thrust into the public sphere and exposed to scrutiny.

Although the study did not set out to critique the Impact Assessment process or EIAs, the analysis demonstrated that EIAs are an inherently flawed process in hydropower development in Laos. The EIA process does not have the capacity to analyse or protect the far reaching ecological and social impacts of hydropower development.

Furthermore, the political nature of EIAs and the power of mechanisms and narratives in the Mekong Basin enable them to be heavily influenced by powerful actors. The study demonstrated that there is a need to rethink the basic instruments used in the environmental and social impacts of dams. Perhaps the question to ask is not if an EIA has been done, but who has done it and what mechanisms and narratives influenced it.

The combination of a political ecology approach and the use of the IA process and a meso-scale analysis of narratives and mechanisms to explore the drivers and enablers of hydropower development in Laos have uncovered important insights into hydropower development. These insights are discussed below in the brief summary of the research questions.

8.4 Reviewing the Research Questions

Two main research questions and one subquestion guided the study's political ecology analysis. The research focused on case studies from Laos, but analysis of other riparian states contributed to the findings. Research questions were employed across the three empirical chapters and the findings were grounded in various case studies (Chapter 6 and 7). The first main research question that guided the study's analysis was:

8.4.1 First Main Research Question

What are the key narratives that legitimize the political and economic structures that drive and enable hydropower development in the Mekong Basin at the national and basin scale?

Narratives are important tools constructed by a wide range of actors to promote and legitimize their agendas and activities in Laos' hydropower development arena. Actors frame narratives along scales that emphasize particular benefits or impacts while downplaying others. Scale is contested in hydropower debates because actors privilege temporal or spatial scales to support their analysis and arguments. The political ecology analysis demonstrated how narratives and scale are influenced and constructed in ways that not only legitimize actors activities and disguise their agendas, but also delegitimize counter narratives.

China constructs its hydropower narrative as a 'win-win' to help legitimize its geopolitical strategy in the Basin. Policy statements emphasize the benefits of China's mainstream dams and its involvement in Lower Basin hydropower development. China's mainstream dams, however, give it considerable power over the water resources of the Basin and its involvement in downstream projects help boost trade relations and profits for state-owned enterprises.

Through the Electricity General Authority of Thailand (EGAT), Thailand presents a securitized narrative of hydropower as essential to the future of the country. EGAT uses this narrative along with its monopoly over the Thai power sector to entrench its power in Thai politics and increase its profits.

The Government of Laos (GoL) legitimizes its hydropower development by constructing a narrative of hydropower as essential for poverty alleviation, economic growth and climate change. By developing policy statements around international accepted agendas the GoL attempts to delegitimize both its critics and also legitimize the environmental and social impacts of hydropower development in Laos and across the Basin.

INGOs often present a counter-narrative to hydropower proponents. They declare that hydropower is a poor choice for the Mekong Basin and that its long-term impacts outweigh its short-term gains. INGOs, however, may not always be the best representative of local interest. INGOs in the Mekong are run by Western agendas. These Western agendas tend to focus on environmental impacts while ignoring the broader neo-liberal discourses that are driving development. By placing their own agendas into the hydropower debate and acting as the representative for local people in the Region, INGOs may be denying the opportunity for local people who are experiencing injustice to respond in their own terms. Furthermore, it is important to note that INGOs power has also been facilitated by the neo-liberal discourse (Chandhoke, 2002).

The World Bank (WB) and the Asian Development Bank (ADB)'s narrative of hydropower along with many of the state actors has been heavily influenced by the neo-liberal development discourse that emerged in the Basin from the 1950s. This development discourse encourages the rapid development of water resources as a solution to the neo-liberal labels of poverty and least developed countries that have been applied to Laos and other Basin states. The neo-liberal discourse has also encouraged private sector involvement in the Basin. The narrative from the WB and ADB encourages connectivity and rapid development that often ignores or downplays its environmental or livelihood costs. The neo-liberal development discourse has also changed the roles of actors in hydropower development.

8.4.2 Subquestion

What new actors have emerged and how have roles changed in the current phase of hydropower transformation in Laos?

Actor's roles have dramatically shifted in Laos' hydropower development in the last ten years (Middleton, 2008). With increased political and economic stability in the Region and new sources of financing alongside a neo-liberal agenda that encouraged private sector investment, the private sector has taken a lead role in hydropower development. The involvement of the private sector has meant that other actors involved in hydropower have had to shift to remain active in the development space.

The WB and the ADB have responded by promoting themselves as knowledge brokers and experts in the Region. With the private sector now the preferred developer and investor for hydropower in Laos, the WB and the ADB have worked to develop Government capacity to regulate hydropower development. They have also helped facilitate hydropower development through the GMS Programme and the Mekong Power Grid.

The shift to private sector led investment has forced INGOs to adjust their activities in the Region. The private sector in the Mekong Basin is less susceptible to INGO criticism because it operates under business norms such as confidentiality and intellectual property rights. As a result of this shift, INGOs in the Region now focus on criticizing decision making by Basin states, such as Laos, and their role in hydropower development.

Finally, under the private sector led development, the MRC's role in managing Basin development appears to have been further delegitimized. The MRC is caught between the short-term economic focused hydropower development agendas of the private sector and its member states, and the demands of its donors. Despite this, its value in providing a platform for issues, such as mainstream dams, to be discussed cannot be overlooked (Suhardiman et al., 2012). The MRC creates a window for civil society, academics and the media to engage with some state development agendas.

8.4.3 Second Main Question

What are the key institutional structures and mechanisms at the national and regional basin scale that have empowered certain actors over others in the Impact Assessment process, project approval and construction of hydropower development projects?

Mechanisms and structures help to understand what drives and enables activities and change (Sayer, 1985). Mechanisms and structures also create boundaries of inclusion and exclusion (Lawson and Staeheli, 1990). The study has analysed mechanisms and structures in hydropower development because they empower actors and shape how development occurs (Sneddon and Fox, 2007).

In Laos, political and economic mechanisms such as weak transparency, poor accountability, corruption, a tightly controlled press and weak civil society have combined with rapid private sector investment to shape the hydropower development process. Mechanisms and structures allow powerful actors to circumvent the social and environmental laws and policies that were designed to protect local people and the environment. The power of mechanisms and structures to shape hydropower development extends beyond local impacts into the fabric of decision-making.

These mechanisms are reinforced by a neo-liberal agenda that promotes rapid development. The neo-liberal agenda is also used by powerful actors to legitimize the existence of mechanisms and structures that allow them to benefit from hydropower.

Scale also shapes how mechanisms and structures impact development. The neo-liberal agenda has also shaped the scale at which mechanisms impact hydropower.

The meso-scale analysis shows that neo-liberal discourses influenced and entrenched mechanisms at national scales, while mechanisms such as lack of transparency and accountability influence hydropower development in ways that meet powerful actors' individual needs at the local scale.

The GoL and hydropower developers have used mechanisms to protect decision-makers and shape the principles of participation and transparency that have been imported by the WB, the ADB and civil society. Through the use of political and economic mechanisms at the meso-scale the GoL gives the appearance of following international good governance principles, but in fact continues with business-as-usual decision-making.

INGOs submit to the control that the GoL and mechanisms place on them because it allows them to participate in the hydropower development arena, thereby serving the interests of their Western based funding and policies. This creates a form of manufactured consent in the INGO sector.

In the case of the Xayaburi Dam, mechanisms allowed the GoL to break its own laws and policies and circumvent the MRC process. INGO and downstream pressure had some influence in improving the development process, but ultimately, the dam proceeded with little change.

Understanding the power and roles that new actors, narratives and mechanisms play in shaping hydropower development in Laos and the Mekong Basin is a key component in developing hydropower that follows laws and policies and gives proper consideration to its environmental and social impacts.

8.5 Analytical Gaps of the Study and Avenues for Future Research

By way of conclusion this section summarizes the gaps in the study and the areas for future research.

8.5.1 Local Agency and Local People

As outlined above, the study used a meso-scale political ecology analysis to analyse the drivers and enablers of hydropower development. The political ecology meso-scale analysis analysed how meso-scale narratives and mechanisms linked and influenced international scales and vice-versa. The analysis also demonstrated how narratives and mechanisms influenced local environmental change. Although this was not the intent of the research, the study recognises that there is also a need to better understand the influence of the local scale and the agency of local people on the meso-scale. The study is mindful of the constraints placed on local scale influence by mechanisms in Laos and the Mekong Basin, such as poor freedom of press, weak civil society and weak accountability. Regardless of these constraints, the influence of local people is expanding in the Basin. For example, in the recent Cambodian election, hydropower was a key topic. Understanding how the local scale influences the meso-scale could be a key step in developing a stronger grassroots civil society in the Basin.

Future research also needs to be extended to natural resource dependant people in the Basin. The people whose livelihoods, food security and culture that depend on the ecosystem services will be the most severely affected by hydropower development and rapid economic change. The Mekong Basin is home to over 70 ethnic minority groups (MRC 2003b). In Laos, ethnic minorities include the Tai, Mon-Khmer, the Khamu and the Hmoung (Ireson and Ireson, 1991). Research examining how ethnic minorities view development and what strategies can be employed to reduce the impact of development on vulnerable groups is needed. A better understanding of livelihoods and the impacts of hydropower on culture, food security and water security of ethnic minority groups is needed in Laos and the Mekong Basin.

Research is also needed into property rights and resettlement rights of ethnic minorities who are often not considered citizens of the state.

Methodologically, studying local communities and ethnic minorities would require overcoming issues of language, translation and culture. Ethnic minorities in Laos and the Region are also wrapped in historical issues of conflict and repression by the state creating access barriers (Ireson and Ireson, 1991).

8.5.2 Geographical Scope

The study has focused mainly on Laos and the actors involved in its hydropower development. The main reason behind this focus is because Laos has undergone a rapid period of hydropower development in the Mekong Basin from the 1990s to 2013. This development includes the start of construction of the Xayaburi Dam, the first mainstream dam in the Lower Basin. The study also focused on China and Thailand with some mention of Cambodia and Vietnam. The second reason behind focusing on Laos' hydropower development was one of practicality. The Mekong Basin is shared by six riparian states and covers an area over 800,000 square kilometres; conducting research in all countries would have been impossible within the resources and time available. Laos provided a useful focal point where many key actors were engaging in hydropower development.

Future research may be refined through the inclusion of other riparian state's hydropower development. At the start of this research in 2010, Myanmar was deemed inaccessible for research purposes. From 2012, the situation has improved. Although Myanmar only covers a small portion of the Basin there are plans for numerous hydropower developments throughout the country. Cambodia is also increasing its hydropower capacity with the development of the Lower Sesan 2 Dam.

The study only offered a cursory analysis of Vietnam's involvement in hydropower development in Laos. Vietnam has been a long-time historical ally of Laos. It has been involved in much of its economic development (Jonsson, 2002). Vietnam was not analysed in more detail for two key reasons. First, the study was self-funded and this resulted in limits on the geographical scope. After a scoping study in 2010, it was decided that Thailand and China were more dynamic players than Vietnam in the current hydropower expansion. Second, there were limited contacts and a lack of data available from Vietnam in regards to its hydropower development in Laos. A number of Laos' dams that Vietnam has been involved in are located along the Vietnamese Laos border. This area is both extremely difficult and occasionally dangerous to access.

8.5.3 Investors

A key problem with hydropower around the world is that it is developed following business and investment models, as opposed to water management, environmental or other potential models. As a result, the way in which hydropower is financed and who finances it are central to understanding the nature of hydropower investment and planning in the Mekong. This research has explored some of the key investors in Laos' hydropower development. Chinese developers and Thai actors have been very active in pursuing both tributary and mainstream dams. Their motivations are both geopolitical and economic. The international players, such as the World Bank, the Asian Development Bank are forced to reinvent their roles in hydropower development as they are increasingly being squeezed out of dam construction and financing. More research is needed into who is investing in hydropower development in the Region and why. The financial actors and rate of returns in hydropower are poorly understood (Foran et al. 2010). The Equator Principles and sustainable hydropower initiatives have influenced some investors to incorporate more rigorous environmental and social plans into their construction costs and Impact Assessment plans. The majority of investors in hydropower, however, have not agreed to these

principles. Hydropower in the Mekong involves a complex web of financing representing billions of dollars of private and public money and little transparency. The lack of transparency in Laos creates a veil for unscrupulous business interests to operate with impunity.

There are a number of methodological considerations to studying investors in detail, however. Hydropower is a multi-billion dollar industry and there is a high degree of confidentiality and national security associated with large investments. Accessing the data needed to understand the hydropower investment models and actors would be both difficult and potentially dangerous.

8.5.4 Post Construction Monitoring and Evaluation

Finally, research into the lack of post-construction monitoring and evaluation of hydropower development is needed. There are a number of cases in the Region where post-construction impacts, or perceptions of such impacts have not been managed (See Chapter 6). For many hydropower projects the Impact Assessment process ends shortly after construction work is completed. Assistance, such as food (in the form of rice subsides), is given to communities usually only one year post-construction. Many resettled communities take many years to adjust, if they are able to adjust at all. In some cases of resettlement, mortality rates have risen by as much as 40% (Romagny 2002). Environmental impacts are dynamic and variable. They may continue to impact a Region post-construction throughout the operational life of the project. Some of the mechanisms that this study has explored may explain why there is a lack of post-construction monitoring and evaluation, however, further research is needed.

Although the Mekong Basin is rumoured to be one of the most studied river basins in the world, there is still a great deal of research needed. As is demonstrated in this

study, hydropower in the Mekong basin is highly dynamic. The development of the Region is impacted by local, regional and global economic, political and social structures. New and old actors adapt and shift within these structures. Future research can help to illuminate pathways to balance the benefits and costs of hydropower development in the Mekong Basin and beyond.

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Appendix A: List of Interviews

Category	Interviewee Code	Date
Government Official	G1	09 November 2011
Government Official	G2	21 October 2012
Government Official	G3	10 November 2011
Government Official	G4	02 May 2012
Private Sector Consultant	PS1	11 November 2012
Private Sector Consultant	PS2	15 December 2011
Private Sector Consultant	PS3	05 May 2012
Private Sector Consultant	PS4	20 November 2011
Private Sector Consultant	PS5	03 April 2011
Private Sector Consultant	PS6	23 October 2012
Private Sector Consultant	PS7	15 November 2011
Private Sector Consultant	PS8	15 May 2012
Private Sector Consultant	PS9	07 December 2011
Private Sector Consultant	PS10	10 April 2011
Private Sector Consultant	PS11	28 October 2011
Private Sector Consultant	PS12	12 May 2012
Private Sector Consultant	PS13	18 November 2011
Private Sector Consultant	PS14	20 June 2012
Private Sector Consultant	PS15	20 November 2011
Private Sector Consultant	PS16	22 November 2011
Private Sector Consultant	PS17	30 November 2011
Private Sector Consultant	PS18	04 November 2011
Private Sector Consultant	PS19	21 June 2012
Civil Society Individual	CS1	05 December 2012
Civil Society Individual	CS2	02 December 2011
Civil Society Individual	CS3	23 February 2011
Civil Society Individual	CS4	18 May 2012
Civil Society Individual	CS5	22 May 2012
Civil Society Individual	CS6	21 March 2013
MRC Official	MRC1	22 October 2012
MRC Official	MRC2	28 October 2012
MRC Official	MRC3	02 January 2011
MRC Official	MRC4	10 September 2011
ADB Official	ADB1	05 November 2011
ADB Official	ADB2	22 March 2013
WB Official	WB1	02 November 2011
Senior Industry Official	IN1	25 November 2012

Senior Industry Official	IN2	14 November 2012
Senior Industry Official	IN3	14 November 2012
Senior Industry Official	IN4	17 November 2012
Media Individual	M1	05 May 2012
Hydropower Lawyer	HL1	08 August 2011
Fisheries Expert	F1	04 November 2011
Reporter Vientiane Times	R1	28 October 2011